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COFFEE IN SOUTHERN ABYSSINIA.

ON the Cotton and Coffee tree of Southern Abyssinia tradition assigns to the countries of Enarca and Caffa the indigenous residence of the Coffee plant. In Shoa Proper the cultivation and consumption are strictly interdicted, as savouring too strongly of the abhorred Mohammedan; but the plant in proper situations grows strong and healthy and in all the bordering districts subject to Sohela Selassie, where the restriction is not enforced, there the plantations are numerous and thriving.

Planted before the rains, the seed soon appears above the ground, and when six months old the offspring is transferred to take the place of some worn-out tree.

Water and the manure of the sheep are plentifully supplied, and the crop, which from a full-bearing adult is generally from thirty to forty pounds, is gathered in March and April. Averaging from eight to ten feet in height, with dark shining foliage, and branches loaded with fruit, it grows luxuriantly in the valleys in any sheltered situation, delighting especially in the soil produced by a decomposition of trap rock, which has been washed down from the adjacent heights; and although taking six years to arrive at maturity, it yields a slight return on the second season of its transplantation. The berries are in the first instance of a dark green hue which before pulling is suffered to turn red, a white milky-looking pulp called gullaboo meanwhile filling up the space between the cuticle and the seed. Having been shaken and gathered from the branches, the crop is spread in the sun until the pulp becomes sufficiently dry to admit of its removal, which, by continual free ventilation out of doors, is usually the case in one month. The seeds intended for the plantation are not divested of the husk, but sown by the handful in a small plot, which is carefully manured and watered, and the gullaboo, sold separately from the bean, is employed as a beverage with the decoction of the choat. For the better security of his own monopoly at the ports of Vyayla and Berbera, the Emir of Hurrur opposes the importation of Coffee into his own dominions, both from Shoa and from the country of the Galla. The plant is extensively and successfully cultivated; but the price given at Hurrur is high in comparison with that paid in Abyssinia; and the average demanded on the coast by the merchants of the former principality, varying from five pence to seven pence a pound, would seem to be in unison with that customary at Massowah in the Red Sea.

The difficulties attending the tedious road to the coast; the lazy indifferent character of the Danakil camel owners, who, regardless of the value of time, spend months upon the journey; and the fitful caprice evinced by the various chieftains through whose territories the caravan must pass—all form great obstacles to the conveyance of the cheaper produce from Abyssinia, although they might doubtless be overcome within a reasonable period by the well-directed efforts of British perseverance. In Caffa and Enarea, coffee grows wild like a weed over the rich surface of the country. The beverage is in universal use among the inhabitants; the price paid is almost nominal; and the convenience of water carriage is alone wanting towards the transportation of the product in unlimited quantities to every portion of the globe. Cotton of two kinds grows in the sequestered nooks of the eastern face of the mountains of Shoa, and in the valleys at the extreme foot of the range; but from the superior luxuriance of the plant, and the amount of crop produced in the lower situations the natural climate would appear to exist in those sheltered spots which in atmosphere much resemble the more favoured parts of Western India. The Efat shrub varies according to the locality and supply of water, from three feet in height to upwards of seven, and usually assuming the form of a pyramid, extends its lower branches to a width equal to the stature; the size of the leaves, and the soft and yielding nature of the stem, imparting a strong external resemblance to the Bourbon cotton. Eight and nine inches in circumference are not unfrequently attained; and the advantages of a very pro-

ductive crop twice in each year, the existence of the plant during five seasons, and the heavy return of the particularly fine wool during the very first, award to the species a most deserving pre-eminence.* The indigenous plant of Efat is not, however, so much esteemed as that from Gondar, which instead of rising tall and straight from the ground, assumes a spreading dwarfy appearance.† The wool is considered superior, and the cloth produced is softer and more elastic, but the existence enjoyed by the exotic is limited to three years. Both are planted indiscriminately in the same field, although, when gathered, the crops are preserved unmixed; and after the fifth year the Efat shrub is cut over close to the ground, which is then ploughed up, and sown with wheat and other grain, when, on the removal of the harvest, the young cotton shoots are well above the ground, and will yield during two further seasons. The seed having been placed for some time in wood ashes, is well rubbed with red earth before planting; and, wherever the locality is favourable to irrigation, water is not spared. The pod, when ripe, is cut with a knife, the husk removed, and the wool deposited in a bag with the utmost care to exclude extraneous matter. One full-bearing bush produces twice during the twelve months between four and five pounds of raw stuff.

Coffea arabica (Boon) grows wild in many of the warmer provinces, but is diligently plucked out by the Christian population, who consider the use of the berry to be as foreign to salvation as the doctrine of the false prophet. Where his followers abide in greater numbers, or uncontrolled, as in Giddem and in the countries of the Ittoo and Aroosi Galla, the Coffee-tree grows unmolested, no care, however, being taken of it; but its proper home seems to be far to the west and south, in the kingdoms of Caffa and Enarea, where a donkey's load is sold for the twentieth part of a dollar. Two kinds of jessamine grace, with their fragrant flowers, the hedges and groves. Olea spec. (Woird) is, with the juniper and yew, the principal forest tree of Shoa; sixty to eighty feet in height and four in diameter are its common dimensions. The wood of the wild olive-tree affords excellent fuel and timber; but no use is made of the fruit, which attains the size of a large pea.—*From a Traveller's Book.*

* Gossypium Efatense seeds completely covered with a close down. Cotton white; capsules 3-celled, 3-valved; flowers small, with a red fundus, leaves 3 to 5 lobed; lobes acuminated.

† Gossypium Gondarense seeds sprinkled with short hairs. Cotton white, capsules 3-celled, 3-valved; flowers large, yellow, 3 to 5 lobed; lobes commonly obtuse.

THE DORMANT PERIOD IN PLANTS.

A fruitful cause of failure in the cultivation of exotic plants is due to ignorance of the climatal conditions under which the plants grow in the land of their origin, and especially the proper season for resting. In temperate climes, where the winter and summer are pretty clearly defined, deciduous plants discard their foliage as the year's temperature declines, and appear during the winter either as leafless objects or inconspicuous collections of dormant buds more or less hidden by the soil. Evergreen plants, on the other hand, retain their foliage till the spring, but only, as it were, on sufferance, active growth ceasing almost entirely, and the verdure only persisting by its own inherent toughness. This is easily seen by our familiar Christmas decorations, where the Holly, Ivy, Laurels, &c., last green for weeks unless placed in hot, dry rooms, where they perish by desiccation.

The resting period in these cases is clear enough, but it is another matter altogether when we import plants from tropical and sub-tropical regions, where the difference between the seasons may be very small indeed as regards range of temperature, and altogether dependent upon widely varying conditions of drought and moisture, so that instead of having a warm and cold season, with a fairly evenly distributed rainfall throughout the year, we have a wet and dry season, with a constant high temperature. Under such conditions, we naturally find indigenous plants to be very differently constituted to ours, being fitted at once to withstand excessive drought and heat during their resting period, and to assume active development at short notice immediately the rains begin.

Now, these periods of drought and moisture vary considerably on different parts of the earth's surface, and the native plants adapt themselves in conformity to it. Nor is this merely a case of latitude and longitude; for, if it were, the matter would be comparatively simple, and the native country of a plant would determine its needs within certain fairly-defined limits. Elevation above the sea-level is, however, a most potent factor to be dealt with, and if ignored, leads to many mistakes being made in the methods of cultivation pursued. In the tropics we may by ascending the loftiest mountains, pass through every grade of climate from the hot plains of the sea-level, with an average mean temperature of 80° or so, to the region of perpetual snow where only the hardest alpines survive. Yet, despite this obvious fact, many a plant has been collected, and safely transmitted from high, cool regions in the tropics, only to die in a warm stove, where they have been placed because they came from the tropics, where a high temperature has been presumed to be universal. In several cases, presumably dead plants of this category have been thrown to the rubbish-heap, only to astonish their owner by braving the elements, and obtaining a new lease by their accidental exposure to conditions more congenial to their needs.

A curious feature in this connection is the great fastidiousness of some plants, which will only thrive if their natural condition be very closely imitated, and the cosmopolitan tastes of others which will stand most diverse treatment with impunity. Our native Asplenium marinum, for instance, which thrives on our western coasts, where it must occasionally be subjected to some frosts, revels in a hothouse treatment, and becomes a huge and much robuster plant. Such wide adaptability is, however, the exception, hence it is of great importance to the gardener to know something of the native natural conditions of growth, temperature, and humidity, and above all, when and how the plant assumes its dormant state, and for how long it maintains it. With plants which are to be forced into flower it is essential to withdraw them from all disturbing influences, and knowing when the dormant period is due, to lead up to it by reducing heat or moisture as the case may be, and maintaining them under such conditions until it is desired to start them into growth. Then the application of heat and moisture will be followed by a healthy vigorous growth, accompanied by an immunity from vermin, the presence of which is only too often an indication of a previous too short sleep and consequent weakness.

The period of rest seems, as we have indicated, to be determined mainly by the nature of the seasonal changes to which the plants are subjected in their native habitats, but in some cases it appears to be independent of this. The bulbs of Hyacinths, Tulips, and other spring-flowering plants are busy during the winter in forming their roots and even their leaves whenever not actually frozen up, and quite early in the year, little later indeed than many other plants that are beginning active growth, and long before the sun has attained very great power, they have flowered and formed new bulbs, their foliage has died down, and they lie in the dormant state for many months, only awakening when winter has again set in. This seems a very strange provision of nature that a bulb should resist all the vivifying influences of summer sun and shower, and wake up into active life when the soil is at or below freezing-point, and the great bulk of vegetation dead or asleep. It would be interesting to know how these bulbs would behave if shipped direct to the Antipodes in the spring. In those cases where the cycle of life has been fully completed, and the whole vitality of the flower is compressed within the rootless bulb, it seems feasible that if they could be at once sub-

jected to their normal growing conditions, they could hardly be weakened by losing their rest; though, on the other hand, it must be assumed that some subtle recuperative process is going on in resting plants akin to that which renews animal vigour during sleep, or otherwise the shortening of the period of rest could hardly be so detrimental as it is, even when favourable conditions for growth accompany the re-awakening.

With regard to Antipodean plants which have long been introduced into this country, such as the New Zealand Todeas superba and pellucida, they have fully adapted themselves to our climate, and rise in our early spring at precisely the time when at home their growth would be ceasing. How long, however, such a change takes to establish, we do not know. Amongst our native Ferns we have noted a certain obstinacy in retaining the home periods of awakening deciduous Athyria found in Scotland, starting into growth a week or two later than southern finds even after years of culture under like conditions. Polypodium vulgare, especially in its varietal forms, demands, curiously enough, a much longer period of rest, or rather starts into growth under glass very much later than normal plants in native habitats. They often, indeed, show no trace of starting under glass until July or even August, and this with perfectly cold culture, so that the lateness of their starting is not to be attributed to growth unnaturally maintained by warmth long after the normal dormant period should begin. This case is unique in our experience, culture under glass inducing, as a rule, and as one would expect, a somewhat earlier development than out-of-doors. Seedlings, as a rule, are more precocious in their growth than old plants, and quite deciduous Ferns, like Athyria, with very little warmth indeed, will the first year retain their fronds right through the winter, though later nothing will prevent them dying down in the normal way in autumn. We have found, however, that even in a few generations, it is possible, by selective culture under glass, to considerably lengthen the growing period of Athyriums, shortening the dormant period in equal measure. Most of the plumose superbum section of this species remain quite green for fully a month after all their immediate progenitors in the same house have withered entirely down. One form, indeed (A.f.-f. plumosum, Druery), is perfectly green at the time of writing (end of November), and has been so at Christmas; while, on the other hand, without any stimulus beyond its own inherent robustness, it rises into active growth a full month before its fellows. One year, indeed, a robust growth started on Dec. 2, before the old fronds had even turned colour, but frost immediately after stopped its progress.

It would almost seem by this case that further selections might eliminate at one and the same time the deciduous nature of the species, and the dormant period also; this latter being decidedly reduced one-half in two generations, and nearly as much in one, since its parent is not far behind it in the long retention of its verdure, while the grandparent growing by their side, dies down as early and as thoroughly as any Athyrium we are acquainted with.

How long the actual dormant period is, as compared with the apparent, is an open question, as well as that of the recuperative or strengthening processes which undoubtedly accompany them. The roots certainly commence to be active long before there is any sign of life in the crown. Hyacinth bulbs grown in glasses are a familiar exemplification of this; and as regards Ferns, even in the depth of winter the crowns will be seen to be fattening up, implying great root activity and preparation for the coming rapid growth in the spring. It is highly probable, therefore, that in most, if not in all cases, much of the dormancy is more apparent than real, and that a good deal of secret and subtle work is being done, of which we know little or nothing, but the need for which is evidenced by the weakness subsequently shown when the dormant period is unduly curtailed, and these processes are interfered with.—*Chas. T. Druery, F.L.S.*—in *Gardeners' Chronicle.*

GAS-LIME AS A MANURE.

I note with some interest what Mr. John Lambert states in reference to the use of gas-lime as an antidote for club in Cabbages, and for the extirpation of wireworm. In lecturing to cottage and allotment-holders, many complaints are made as to the ravages of the wireworm, and the occurrence of clubbing in Cabbages and Cauliflowers. If I understand Mr. Lambert rightly, he recommends the use of gas-lime in a crude state, just as it comes from the gasworks. It is true that he recommends its application in very small proportions, but I have met with allotment-holders who have applied it to their land just in the form in which it is received from the works, and then found it very difficult to grow anything on the land for a year or two. It is no doubt a useful agent, destructive to insect-life when used as recommended by Mr. Lambert; but my fear is, lest some might put too large a construction upon his words, and apply it unwisely, and with unfortunate effects. Mr. W. G. Watson, in his admirable paper on "Manures and their Uses," tells us that gas-lime "is a mixture of calcium hydrate and calcium carbonate, with sulphite of lime. The two latter compounds are in themselves poisonous to plant-life, but they are both converted into gypsum or sulphate of lime (a plant-food), by exposing the gas-lime to the action of the atmosphere." It may and, I fear, does happen, that when gas-lime is applied in a crude state as received from the gasworks, the two compounds, poisonous to plant-life, are present in undue proportions in the interests of safety, hence the unfortunate results which I have heard allotment-holders deplore. Mr. Watson further states:—"To prepare fresh gas-lime for use in the garden, it may be spread out on a layer of pondmud, night-soil, or coarse vegetable refuse, and exposed to rain and air." This I hold to be sound and necessary advice. If put on cleared land in the autumn, it can be laid upon the surface at the rate of 40 lb. or so per rod, but it should lie on the surface for several weeks before being forked in, taking care that it is distributed equally through the soil. It is undoubtedly a powerful remedial agent in clearing land of insect life, but needs to be applied with caution.—R. D. [It is doubtless safest to use gas-lime after some weeks' exposure in the open for surface-dressing, or when applying it to land dug to one spit in depth; but in the case of dressing the bottom soil in trenching and incorporating with the top spit, which is usually thrown into the bottom of the trenches in the small quantities recommended by Mr. Lambert, no harm, but rather good, would result from the use of gas-lime in the fresh state. ED.]—*Gardeners' Chronicle.*

NOTES ON THE FUNCTIONS, COMPOSITION AND VALUATION OF MANURES.

By DOUGLAS A. GILCHRIST, B.Sc.

Briefly stated, the following are the functions of manures:—(*a*) In many cases manures improve the physical and mechanical condition and the texture of the soils to which they are applied. Thus lime, when applied to sour land decomposes, and therefore renders harmless the sour organic acids, whose presence in the soil is the cause of the sour or acid condition of the land. When farmyard manure is applied to land, the texture and physical condition of the soil is much improved by the organic matter of which this manure is largely composed. (*b*) In many cases manures act on plant food already present in the soil, and convert this plant food into such a condition that it can be absorbed by the roots of plants. The manurial value of lime is due principally to the action of this manure on the food of plants already present in the soil. (*c*) The most important function of manures is to supply plant food necessary for the growth of crops, which is deficient in the soil.

The necessary constituents of plant food that are generally deficient in soils are nitrogen, phosphoric acid, and potash.

Nitrogen occurs in manures as:—(*a*) Nitrates, *e.g.*, nitrate of soda. (*b*) Ammonia salts, *e.g.*, sulphate of ammonia. (*c*) Organic nitrogen, *e.g.*, dried blood.

Nitrogen as nitrates is immediately available as plant food

Nitrogen as ammonia salt soon becomes available.

Nitrogen as organic nitrogen is much more slowly available.

Phosphoric acid, combined with lime, is generally present in manures as:—(*a*) Insoluble phosphate of lime, *e.g.*, bone meal and basic slag. (*b*) Soluble phosphate of lime, *e.g.*, superphosphates and dissolved bones.

Insoluble phosphate of lime is converted into soluble or superphosphate by treating it with sulphuric acid.

Soluble phosphates are generally more active than insoluble phosphates in promoting plant growth.

Potash is the valuable ingredient in kainit and muriate of potash. Potash has generally a better effect on light than on heavy soils.

Superphosphate and nitrate of soda should not be mixed, or, if mixed, must be sown immediately. This also applies to the mixing of basic slag and sulphate of ammonia.

Artificial manures should be purchased on a guaranteed analysis, and the source from which the fertilizing ingredients of the manure are derived should be stated. This precaution is especially necessary in purchasing bone or mixed manures. The percentage of nitrogen in a manure should be stated in its equivalent of ammonia, that of insoluble phosphoric acid as phosphate of lime, soluble phosphoric acid as phosphate of lime, and that of potash salts in their equivalent of potash.

Artificial manures are valued according to the quantities of nitrogen, soluble phosphate of lime, insoluble phosphate of lime, and potash they contain, and are generally valued on the unit system. The amount of a unit is taken to be one per cent. of a ton. Thus one ton of nitrate of soda containing nitrogen equal to 19 per cent. of ammonia is said to contain 19 units of ammonia.

Farmyard manure contains all the ingredients of plant food. This manure is exceedingly variable in quality, as the quality varies with the nature of the food given to the animal, the nature and amount of the little used. the method by which the manure is produced, and its treatment from the time of production until it is applied to the land.

AMOUNT OF MANURIAL INGREDIENTS GENERALLY PRESENT IN THE MORE IMPORTANT MANURES.

	Amount Per Cent. of			
	Nitrogen equal to Ammonia.	Phosphate of Lime. Soluble.	Phosphate of Lime. Insoluble.	Potash Salts equal to Potash
Nitrate of soda (95 per cent. purity)	19	..	..	..
Sulphate of ammonia (97 ,,)	24	..	..	..
Nitrate of potash (85 ,,)	14	..	..	40
Dried blood	15	..	..	..
Horn dust	14	..	...	
Bone meal	4—5	..	44—55	..
Steamed bone flour ..	1—2	..	56—65	...
Dissolved bones ...	3·5	16—20	10—14	...
Superphosphate (high class) ..	..	35—40	..	.
Superphosphate (low class) ...	..	26—28	.	..
Basic slag (best quality) ..	..	..	37—42	..
Kainit ..	...	..	..	12
Muriate of potash (80 per cent.) ..	..	..	..	30
Sulphate of potash (50 ,,) ..	...	...	...	27·5
Peruvian guano (low class) ...	3—5		30—50	1—3
Ichaboe guano ...	10—16		18—30	2
Fish guano ...	7—12	17—35	...	...

The manures mentioned in the above table can always be purchased at a much cheaper rate than special manures, such as "grass manures," "cereal manure." "turnip manure," &c. Nitrate of soda should not be applied to any crop until that crop has reached an active stage of growth. Sulphate of ammonia is generally applied along with the seed of any crop. The phosphatic manures, bones, superphosphate, basic slag, &c., are not like nitrogenous manures liable to be lost from the soil, hence they may be applied for some time before the growth of a crop. As a rule, basic slag should be applied to soils rich in organic matter and poor in lime. Superphosphate generally gives a better result on harder land. In the case of basic slag it is a distinct advantage to apply it in the autumn or early winter for a crop to be grown during the following season. The qualities of this manure, which contains phosphoric acid equal to 37 per cent. or more of phosphate of lime, give the best results, and this manure should be ground fine enough to allow 85 per cent. of it to pass through a No. 100 wire mesh. Superphosphate should always be in a dry powdery condition, and not pasty, as, if so, it is impossible to distribute it evenly in the soil. It is probably desirable to apply potash manures in the autumn or early winter. When artificial manures are applied some time before the growth of a crop, care must be taken that they are not buried too deeply.—*Mark Lane Express.*

NOTE.—The above was printed as an extract in the Agricultural Journal of the Department of Agriculture, Cape Colony, but it will doubtless be found of interest to agriculturists in general.—J. H. H.—*Trinidad Bulletin.*

COCONUTS ON THE EAST COAST OF FLORIDA.

A West Palm Beach correspondent of the *Citizen* writes:—

Although the fact that a vast number of coconut trees is to be seen along the east bank of Lake Worth has been told many times, yet few have been informed of the origin of these trees. Their being planted in rows and forming shaded walks from the lake to the Atlantic ocean and almost in a straight line from the Dimick place to Cragin's a distance of three miles, plainly shows that they were planted by hand, and with great care.

The story of their origin as related by Captain W. M Lainhart recently, is as follows:—

"Some time in the middle of January, in 1878, I happened to be upon the beach one afternoon and saw a ship, which afterward proved to be the Spanish bark "Providencia" carrying a crew of thirteen men, none of whom could speak a word of English except the mate and he only a few words. The vessel acted suspiciously, and I conclud d to watch her. I waited until she was hid in the darkness, when I went home, resolved to come again the next day, I was upon the beach at day break, and saw that the vessel had be n run ashore. With the assistance of H .F. Hammond, I soon had her stripped of the rigging, which we piled upon the beach

"The vessel had about 20,000 coconuts aboard, which soon began to wash ashore. These we piled up along the beach and divided them among the various settlers, who set them out upon their homesteads, and they have since grown luxuriously.

"The coconuts which had their husks on them, came from Baracoa, in southeastern Cuba. The cargo was bound for Barcelona. From what I could learn from the mate, who was the only one I could understand, the vessel had been out only a few days from Baracoa. All of the men w re drunk. They had plenty of provisions and liquor, and remained on the beach here for three or four days. They were present while we were stripping the vessel, and paid little attention to the boat after they had left her. In fact, it was my impression that the captain run her upon the shore for the express purpose of getting the insurance.

"I was much sought for by all the members of the crew, from the captain down. They made me remain with them all night for fear of wild animals, Indians, etc, and, in fact, it was impossible for me to get away. I remember the second night more distinctly, it was very cold and disagreeable. I was forced to stay with them, and I had made up my mind to get home at all hazards. Finally, when the last one of them had dropped off to sleep, I slipped away and went home, returning at daybreak the next day without their realizing that I had gone. I was indeed glad when a ship

hove in sight, which I signalled and they were all but on board."

From the 14,000 or more coconuts secured at that time their number has increased with each year. Captain Lainhart states that a few were growing there before that time, but where they came from he has never learned. About 6,000 of those that came from the wreck were washed ashore all along the coast, and have made stately trees that are now looked upon with much interest by all those who travel in this direction.—*Florida Agriculturist.*

THE LAUDERDALE ESTATE, SOUTH-WEST MLANJE.

One of the best known of the original pioneers of B. C. A, whether to natives or Europeans, is Mr. John W. Moir the original of the name Mandala. In passing we may note that Professor Drummond uses Mandala in his recently published Lowell lectures on "The Ascent of Man" as an instance of the savage habit of generalising unconsciously from single terms. He gives the instance thus:—

"Mr. John Moir, one of the earliest white men to settle in East Central Africa, was at once named by the natives *Mandala*, which means "a reflection in still water," because he wore on his eyes what looked to them a *still water* (spectacles). Afterwards they came to call not only Mr. Moir by that name, but spectacles, and finally—when it entered the country—glass itself."

The Professor might have gone on to show how it was also applied to the house in which he dwelt and finally to the community over which at that time he presided. Although not now resident at Mandala, Mr. Moir's home at Mlanje is well known even to most of the new arrivals, and there are few visitors to that district who do not take away a pleasing reminiscence of the open handed hospitality of the modest bungalow over which Mrs. Moir presides. Mr. Moir has gone into coffee planting with his usual enthusiasm and his place is furnished with every modern requisite for the carrying on of the planting business. Unlike some of us who move, so to speak, warily, as feeling our way, Mr. Moir has an implicit belief in the coffee-planting industry. He has now some two hundred acres under coffee and intends going in for further extensions as he has several other tracts of land some of which he purchased during the last year. The Lauderdale Estate was first opened up by Mr. Brown of Ceylon for the African Lakes Company and some three years afterwards was transferred to Mr. Moir. Mr. Brown who is a relative of Alexander Brown of Ceylon, the writer of the original Ceylon "Coffee-planter's Manual", and who is now established at Dunraven some three or four hours south from Mr. Moir's place, seems to have opened the estate on the most approved Ceylon methods. Unfortunately he did not allow for the violence of the Mlanje winds and hence the estate is somewhat wind-blown on exposed parts. Mr. Moir is however doing what he can to remedy this over sight and by means of bananas, trees of the *ficus* family and others, is endeavouring to shelter and shade his estate while on his new clearings he is judiciously leaving up shelter belts of the original forest.

The elevation of the estate is somewhat low, varying from about 2,000 feet to 2,500, but on the other hand its rainfall is about the largest recorded in the Protectorate. In 1893-4 it amounted to 91·18 inches and in 1894-5 to 127.70 with an average of 200 rainy days during each yearly period.

The crop in 1894 amounted to about one-and-a-half tons while this year about six tons (hulled) were gathered. The coffee is pulped by Gordon's cylinder pulpers driven by an iron overshot water-wheel, fourteen feet in diameter. There is also a hulling and separating machine and a circular saw driven by the wheel. Mr. Moir is the first to introduce an iron water-wheel the only other water-wheel in the country hitherto having been Mr. Buchanan's wooden wheel at Zomba which is now dismantled.

We were much interested in a cocoa plant, the only one in the country so far as we are aware, which seems to be doing well and is tended and watched most carefully. Besides the ordinary fruit trees we noticed also several mangoes which are making good progress. While on this subject it is interesting to call to mind that to Mr. Moir is due the honour of introducing the loquat into B. C. A. she having brought the seeds from Algiers, to which country she paid a visit some years ago. Besides coffee and fruit trees Mr. Moir has been experimenting with wheat and ginger and is also trying mustard as a green manure to be dug in amongst the coffee.

Mr. Moir's energies are not all directed to tropical agriculture, however, as may be seen from the young shorthorn bull and cows which adorn his herd of cattle. The young bull is pure bred from the sire which was introduced by Mr. Moir sometime ago and which unfortunately died last year. It is to be hoped that Mr. Moir's efforts in this and other directions will be crowned with success. It is by the efforts of such men as he that a country is benefited for each solution of a problem, whether positive or negative, is a distinct gain to the community.—*Central African Planter.*

ROSES.

HOW ROSES OUGHT TO BE PLANTED.—Whenever it is possible, Roses should be given a bed to themselves, in an open spot, away from trees, and not planted among other flowers. A bed 3 feet wide will hold two rows of plants, and one 4 feet 6 inches wide three rows. The distance between the plants for dwarfs should be about 18 inches, and for standards about 2 feet 6 inches. The beds having been made ready, and the position of the Roses in them marked out, the next thing, and the most important of all, is to see that they are properly planted. Some of the plants should be carefully removed from the trench where they had been "heeled in," and brought to the side of the bed they are intended to occupy. A mat should always be thrown over them, to keep their roots from drying by exposure to sun or wind. A hole should then be dug about a foot square, and of sufficient depth, in the case of dwarf (or "bush") Roses, to allow the junction of the stock and scion to be about an inch below the surface of the bed when the operation is completed. In the case of standards the hole should be 6 inches deep. A plant should then be taken from beneath the mat, sprinkled with water, and held with the left hand in the centre of the hole, while with the right the roots are spread out horizontally and evenly in it, taking care that the roots cross each other as little as possible. Some of the finest soil available should next be sprinkled over the roots so as just to cover them. Over this light covering place 3 inches more soil, which may then be trodden in and the hole filled up. Tread the soil firmly round the plant when this has been done. Firm planting is very necessary for the future well-being of Roses.

In the case of heavy soils, or where the ground remains for any length of time is too wet a condition for the planting of Roses to be satisfactorily carried out, it is an excellent plan to secure some light gritty soil, such as the clippings obtained from the sides of roads when the grass-edges are being cut. A spadeful of this material may then with advantage be placed both above and beneath the roots instead of the natural soil. Soil of this character may be firmly trodden without caking together, and the grit in it encourages the early formation of roots. When planting Roses singly on lawns or elsewhere, the same method should be followed as when inserting them in beds. Where Roses are planted in the spring the shoots should be pruned before planting.

SINGLE PLANTS ON LAWNS OR IN BORDERS.

Previous to planting Roses singly on lawns or in borders a hole should be dug for each, 18 inches square and 18 inches deep. The soil removed from the holes should be well mixed with one-fourth of its quantity of well-decayed manure, before being

restored to them. If the soil be found poor and unsuitable, better soil from another part of the garden or some turfy loam shou'd substituted. No grass should be allowed to grow within at least 6 inches of the stem of Standard R·s s planted on lawns.

CLIMBING OR PILLAR ROSES.

For Climbing and other Roses of very vigorous growth the whole prepared for their reception should be 2 feet spuare and 2 fe t deep, and care be taken that the soil be of a suitable character and well enriched with manure. For it must be borne in mind that such Roses require much more root-room than those which are pruned back every year, and in most cases are intended to occupy the same positions for many years to come. Therefore, any extra care and attention bestowed on the p'anting of strong-growing Roses, like those referred to, will, sooner or la'er, will be repaid.

STAKING STANDARD ROSES.

As the planting preceeds, each plant should be secured to a firm stake of some kind. In order to avoid damaging any of the roots, the stakes shou'd be driven firmly into the holes prepared for the reception of the plants before planting them. Dwarf or bush-plants do not need staking; but, to prevent injury from high winds, all long growths should be shortened previous to planting.

THE LABELLING OF ROSES.

Where there is only one plant of any variety, a permanent label, with the name of the Roso either written or printed upon it, should be attached to a small stake p'aced near it, and not to any part of the plant itself; but when several plants of the same variety are grouped together, or follow one another labels will only be necessary at the beginning of each such group or row.—*Gardeners' Chronicle.*

A SO-CALLED "QUININE-BARK."

In our Trade Reports on page 838 of the issue for December 7 last, under the head of "Interesting Drugs," we referred to a small consignment of bark from the West Coast of South America from trees "growing in the same forests which yield the red cinchona-bark of commerce" The bark was further said to be used medicinally amongst the natives, and it was supposed to contain quinine. That the bark in question was rubiaceous there was but little doubt, but it could not be further identified at the time. Some new light, however, has since been shed upon it, though it by no means clears up its specific or even generic i'entity—indeed, to some extent, it is further mystified; but as the history of a bark which, if not identical, is very closely allied to it, may be interesting, and withal may lead to its accurate nomenclature, we give the following, which we have been at some pains to trace. Referring, in the first plac·, to Guibourt's "Histoire Naturelle des Drogues Simples," published in 1850, we find amongst the *Rubiaceæ* a bark described under the head of *Quinquina bicolore*, which agrees in its structure, colour, and taste with the bark recently received in the London market. The tree, however, is said to be a native of Guadeloupe, where it is known as *Bois jaune*. Guibourt gives it as his opinion that this tree is identical with that described by De Candolle under the name of *Stenostomum acutatum*. The fact of this tree being a native of Guadeloupe, a d the bark recently seen in the London market coming from the "West Coast of South America," would seem to be fatal to the chances of their having any affinity; but proceeding further in the search for more informati n on the subject of *Stenostomum* bark we find a reference in vol. xi. of the *Pharmaceutical Journal* for 1851, page 168, where in some remarks on *Cinchona Pitaya*, or pitayo bark, by Mr. B. W. Bull, reprint d from the *New York Register of Medicine and Pharmacy* for February, 1850, we re d that the writer was shown by Professor Guibourt at the Ecole de Pharma ie at Paris a specimen of Pitayo bark which Guibourt was of opinion contained either quinine or cinchonine; but the writer says he is "confident that it contains no alkaline principle whatever, and its tonic properties, if it possesses any, must be trac d to other sources than to the presence of the principles which have hitherto been attributed to it." An editorial remark on this paper draws attention to the fact that the name Pitayo has been given to two entirely different barks, one of which is the *Quinquina bicolore* of Guibourt, and is the produce of *Stenostomum acutatum* DC., and the other a *Cinchona* bark, to which Professor Guibourt assigned the name of *Quinquina Pitayo*, is the produce of Colombia, and somewhat resembles Calisaya bark, and is probably yielded by *Cinchona academica* of Guibourt, which really equals *Cinchona officinalis* of Linnæus.

The next reference to the bark of *Stenostomum* we find in a notice by T. C. Archer in vol. xiii., page 312, of the *Pharmaceutical Journal* for 1854, "on a few articles imported into Liverpool in 1853." It is said to come from Va'paraiso and to have been introduced under the name of Peruvian bark, and is thus described:—In respect to size and general appearance this bark is not unlike the coarser sticks of cassia, for though evidently the external bark of a tree, it is remarkably smooth and neatly rolled into thin quills about 2 f et 6 inches in length. In thickness it is about that of a shilling, externally of a very light drab colour, rather darker inside the quills, but internally tho colour is cinnamon red. Mr Archer further says that a sample was forwarded to London, where it was n med *Stenostomum acutatum*, but he thought probably in mis'ake, in consequence of that plant being a native of Guadeloupe, and the bark coming from Valparaiso. He also suggests the probability of its being a species of *Guettarda*, and perhaps *G. cordata*. He bases this suggestion on the fact of the Guettardas being excellent febrifuges, and bei g used by the natives as such.

We have had an opportunity of examining a portion of the actual sample which came into Mr. Archer's hands in 1853, and comparing with it the fresh sample recently received in London, and, though there are points of difference, the similarity is very great. In the fresh sample the exterior is of a greenish colour, and not drab; the inside, however, is very like it, and identical in striation. In fracture the colour shows rather more yellow than in the o'd sample, but sections as seen under a lens are so much alike as to be scarcely distinguishable the one from the other. In taste, too, they are alike. The old bark is distinctly quilled, and somewhat thicker than the new, which is m re flattened. The conclusions, then, to be arrived at are that the bark recently received in London is, if not produced by the same tree as that which made its appearance in Liverpool in 1853, the produce of a very closely-allied plant, but what the generic name of that plant or plants is it is still impossible to say in the face of the two coming from places so far apart. The suggestion as to its being a species of *Guettarda* we do not agree with, as in all the species of that genus we have had the opportunity of examining the barks are totally different and without the slightest trace of colour.

In conclusion, it may be well to say that the genus *Stenostomum* is now sunk in that of *Antirrhœa*, and that De Candolle's *S. acutatum* is now known as *Antirrhœa aristata*, Bth. and Hook. f.—*Chemist and Druggist.*

THE TREATMENT OF CASUARINA ON SAND-DUNES.

M. E. McA. Moir's interesting remarks on the trea ment of sand-dunes in France in the *Indian Forester* for the month of June, and especially his remarks in connection with the growth of the small pines near the sea-shore though entirely "sheltered from wind" being stunted, as compared with those half a mile distant exposed to the "full force of the western gales," instigate me to record a few notes on the Casuarina under somewhat similar circum-

stances on the sea-shore near Bulsar in the Surat District.

Efforts have been made to establish the *Casuarina equisitifolia* on the sea-shore at this spot for some time past, and last year I managed to raise at least 25,000 transplants at a nursery established for the purpose in the vicinity. Unfortunately, just about the time when the final planting operations were to take place I was transferred to another Division. But nevertheless, I gained sufficient experience from the existing plants to justify the presumption that without some special method of treatment it would be impossible to rear the plant successfully. While trees at a distance of half a mile inland on private property were doing well, those on the sea-shore itself were stunted and unhealthy even when fairly well sheltered from the strong sea breeze. I came to precisely the same conclusion as to the cause of this as did Mr. Moir in the case of the pines on the coast of France; but whereas he seems to express some doubt, there is no occasion to entertain any, so far as the Casuarina are concerned. The sand deposit on the minute needles and on the bark and twigs was easily perceptible to the naked eye, and could be rubbed off with the finger. Under a powerful magnifying glass the appearance of the deposit was appalling and quite sufficient to suspend the physiological functions of any plant. These microscopic particles of sand, moreover, appear to travel with considerable force, penetrating the cortical depressions and irregularities and filling up the stomata of the leaf system. The dunes I refer to are partially covered by that valuable creeper the *Ipomæa biloba*, and in treating the Casuarina for this evil two courses seem to be open to us—(1) to greatly add to the quantity of this or any other creeper, a grass that may be induced to grow, thereby reducing the surface area of sand exposed to the wind, and (2) to occasionally wipe or syringe the plants free of the deposit that forms on them. The second course might, at first sight, strike one as being impracticable, but as the formation of this deposit is very gradual plants need not be subjected to such treatment very often. I cannot help wondering how the Madras Officers have got over this difficulty, for surely they cannot have been free of it, and I think it would be of considerable interest if one of them were to give us his experience in the *Indian Forester*.—W. A. WALLINGER, Godhra, Panchmahals.—*Indian Forester.*

CLIMATIC INFLUENCE OF FORESTS.

This influence, says M. Charles Marsillon, in *Cosmos* (August 10) has long been recognized, but has been studied scientifically only since 1867. The results of this study show that the mean temperature of wooded regions is slightly less than that of open country, the difference being about one degree Fahrenheit near the ground and a little less at the tops of the trees. In general, it is cooler by day and warmer by night in the woods than in the open country. Thus forests are regulators of temperature, and have an important influence on the climate, and hence on the agriculture, of neighbouring regions.

The soil of forests also is slightly cooler than that of the open regions—a fact especially advantageous to agriculture in warm climates. In Wurtemberg the difference of maximum temperature between forest soil and that of the open country has reached 8 centigrade. The mean annual humidity of forest air exceeds by 3½ per cent that of the open country. This excess is in some cases as high as 14 per cent. Besides, the temperature of the tree themselves is lower than that of the surrounding air, whence that air, coming in contact with the trees, has its temperature lowered to a point nearer to saturation. If the air of the open country, already saturated with moisture, blows through the trees, and is thereby lowered in temperature, its moisture will, of course, condense and fall as rain; thus a wood may act as a veritable rainmaker. It is in fact generally recognized that rain is more frequent in the vicinity of vast forest regions than elsewhere. In parts of the steppes of Russia where trees have been planted and forests have grown up in the past fifty years rain has notably increased. Forests also prevent floods. The forest soil is soft and spongy, retaining the rainwater and letting it out slowly into the streams. The absence of such a sponge, together with greater ease of evaporation, make destructive torrents much more frequent in barren than in wooded regions. Forests have an important hygienic influence. In warm countries, when a forest is cleared away, fever alwaya makes its appearance, while if in insalubrious districts trees are planted in quantity, sickness disappears. Thus the Roman campagna and the Tuscan marshes, where luxuriant forests are now growing, have almost lost their traditional unhealthfulness. Another important hygienic factor of the forest is the fact that ozone exists in unusually large quantities in their neighbourhood. This fact, lately established by Fernow, has been held by him to show that a forest constitutes an important barrier against the approach of epidemics and infectious diseases.—*Indian Agriculturist.*

COFFEE: ITS POSITION AND PROSPECTS.

BY J. BUCHANAN Esq., C.M.G.

How great is the satisfaction of being able to sit down pen in hand and chronicle the march of progress in Nyasaland. Twenty years in the world's history is but a moment, and yet how much men may accomplish by steady perseverance and a determination to leave the world better than they found it even in so short a time.

The discoveries of the immortal Livingstone in Central Africa roused the civilised world to a sense of duty, and the great man's death by the shores of Bangweolo caused the hearts of thousands of his countrymen to throb with a desire to do something in answer to his prayer, "to heal the open sore fo the world," the result by practical form in 1875, a handful of Missionaries take their lives in their hand and enter the Dark Continent. A year later follow more Missionaries, the Merchant, the Planter, the man of Literature and of Art.

Great are the difficulties to be overcome; dogged perseverance and British pluck soon tell. A footing is obtained on the shores of Nyasa, and later the Shire Highlands are taken possession of. From a commercial point of view one could not easily see great prospects of immediate trade, but there lay the country in its length and breadth, its hills and valleys, mountains and lakes, and the eye of the planter was keen to perceive a land full of promise, possessing great capabilities, ready to respond to the cultivator's magic wand, and to reward the husbandman with fruits rare and precious. Years pass on, experiments of all kinds are tried. Commercial Companies enter upon the field. There are wars and rumours of war; nations vie with each other in their effort to possess the coveted prize. The justice, however, of Britain's claim is recognised, and in 1889 Her Majesty's subjects had the satisfaction of seeing Nyasaland placed under British protection. For years previous to this coffee had been cultivated at Blantyre and Zomba, and the Messrs Buchanan Bros had staked their little all in it, while it was yet doubtful to whom Nyasaland would finally belong. Many were the forebodings they with others shared, but with the declaration of a British Protectorate difficulties disappeared, and from that day the coffee industry has gone forward with leaps and bounds.

It is not the writer's intention at present to enter upon a detailed account of the coffee industry of the country nor to write the history of progress made. A medium is now being offered for the free discussion of matters which primarily concern planters, and it behoves all interested in planting to freely avail themselves of this means of obtaining and disseminating information regarding the industry which of all others is likely to prove the salvation of Central Africa.

The kindly interest taken in Nyasaland by people in almost every part of the world demands that the true position of the coffee industry and its probable

future be made known. Roughly speaking there are at this moment 6,000 acres under coffee in Nyasaland spread over something like 100 plantations. Of these the greater number are in their first and second year, so that the year '97 is looked forward to with considerable satisfaction, it being very probable that the export of coffee in parchment for that year will reached an aggregate of 24,000 cwt.

Very varied have been the returns per acre. In the early days on one occasion 17 cwt per acre was gathered. Time after time a maiden crop of 8 cwt has been reaped, far too much, but taking the plantations all over an average crop of from three to four cwt may be reasonably looked for. The general method of cultivation adopted, though not in every particular identical with the system in vogue in Ceylon and India, may be said to be practically the same, the first planters having obtained their knowledge chiefly from the well-known works of Indian and Ceylon men. At the same time considerable latitude has been allowed, local and climatic circumstances rendering it unwise to adhere slavishly to the methods followed in other countries, no matter how suitable for those particular countries such methods may be. For instance, in the clearing, for several years planters trusted chiefly to local labour which failed them just at the criticaltime with the result that great clearings, felled and burnt off during the dry season, ran the risk of reverting to bush and grass for want of labour when the rains fell, and much clearing and holing had to be done at the end of the wet season. Again the plantations were unavoidably allowed to become foul with weeds, and doubtless the early plantations sustained great injury in consequence.

It must be remembered that the country at that date was in a very unsettled state, and the natives would not be persuaded to leave their home for a journey of 40 miles, much less 300 miles, as is the case now, returning six months or twelve months after. The African Lakes' Coy. had succeeded in bringing Atonga by steamer from Lake Nyasa as far back as 85 to do their transport work, but the passage was costly, and it was not until '91 that the Atonga agreed to leave their home and accept work on Buchanan Bros.' plantation at Zomba. The position today therefore is totally changed. The local native being satiated with cloth and other goods does little or no work, their place, however, during the dry season is taken by Angoni who come from the table land to the west of the Shire, while the Atonga from further North are available for the wet season; thus it is that the planter today, notwithstanding the enormous increase of labour demand, is in a better position than was his pioneer brother. The Atonga labour supply has been rendered available to every planter in Nyasaland by the action of H. M. Commissioner in reducing to order several Yao chiefs on the west of Lake Nyasa who, up till then, would not allow gangs of Atonga to pass through their country. Let us hope that a year hence we may see the remaining Yao chiefs of the East of the Lake silenced and thus another vast labour supply rendered accessible,

One cannot prophesy as to the future of the labour supply, as many contingencies may arise. The discovery of gold, for instance, might seriously interfere with the planters' labour supply, but, taking no pessimistic view of the case, and all things being equal, there is really no reason why the supply should not go on increasing. There are yet vast fields of labour untapped, and as we advance and close in on the old order of things in Africa the natural corollary is that tribes come to learn that the new state is better than the old. Taking the Angoni as a case in point it seems like but yesterday since the writer saw villages burning, people flying for refuge, armies of Angoni raiding and pillaging. Now we have in the Shire Highlands year after year thousands upon thousands of those same Angoni who have exchanged the spear and shield for the hoe, and who prove themselves as capable labourers as they were warriors to be feared.

The rate of wages at the present time varies from 4 to 6/ per month for the ordinary plantation hand. The more skilled labourer obtaining 10 or more rupees. Wages are yet to a large extent paid in barter goods such as calico, beads, brass wire, handkerchiefs etc. but a money currency, namely, the Indian rupee and the English coinage, is fast becoming general. Land is yet available in quantity. Notwithstanding a very marked increase in value within the last few years there is yet good coffee land obtainable at from 5/ to 20 per acre. It is calculated that a plantation of 200 acres including, say 1000 acres more or less of land, may be brought into bearing in its third year for about £2000, though £2500 would be a safer estimate. The coffee in this country has a marked tendency to bear heavily in its first year. The writer has known coffee, not forced in any way, to bear a maiden crop of 8 cwt. per acre within 3 years of the date of placing the seed in the soil. The result of this is ruinous, and so weakens the trees that, in many instances, little more crop is obtained. Hence it would be well not to expect a maiden crop until the fourth year. As to how long the trees may go on bearing it is at present impossible to foretell. There are trees in the writer's possession now in their eighth year which have borne five continuous crops; while, on the other hand, trees that have borne heavily in their initial stage have had to be cut down and renewed.

The great drawback coffee has to contend with is the want of transport. One dreads to think of what may be the position two years hence, unless by that time we have a railway from Chiromo to Blantyre, if indeed it be not from the sea coast. The present transport arrangements are utterly inadequate to deal with the export of 2000 tons of coffee in a period not extending over three months. There are railway and tramway schemes in the air, both good enough in their way, but what is wanted is a throughly good railway 3' 6" gauge starting best of all at the sea coast, failing this at Port Herald or Chiromo and tapping all the coffee districts in its way to Blantyre. As yet the fatal leaf disease of Ceylon is unknown in this country, and stringent measures are in force to debar its entrance. There are here, however, several ills that coffee seems heir to in every country. The borer, for instance, we have ever with us; we have suffered also from blight and bug which every intending planter must be prepared to reckon with. The bug we have to dread most however, is an insect not unlike the lady-bird beetle in appearance though considerably smaller in size. At one time this insect was regarded rather as a friend than a foe. The mischief resultant upon its visitations is often serious, empty berry, diseased bean, and in some cases, no crop at all. Steps are, however, being taken to combat this enemy and we hope to publish the results in this magazine at an early date.

Summing up the position and prospects of coffee in Nyasaland there is every reason to regard coffee planting in the light of a staple industry. H. M. Commissioner Mr. Johnston, has all along recognised the importance of the coffee industry, and we would believe that future legislation will more than ever tend to aid the planter. Nyasaland planters are not slow to take advantage of accessory aid. They are loyal to those in power and alive to their own interests, and with the many advantages this country possesses, and the general intelligence of the planting community, we feel warranted in concluding that coffee planting has a bright future before it.—*Central African Planter.*

THE CACAO CROP.—A planter in the course of a letter to us says:—"No two persons can agree upon the cacao crop this year. Some say it is short and others that it is up to estimate. It is in my opinion rather shorter than otherwise generally. The Caracas in many places has a crop with an interval, or rather a crop for the old year and one for the new, separated from each other by an interval of some weeks, while the Forastero is spinning along with ripe and green and blossom again. As regards prices they are keeping up to previous figures in England. But there is no knowing what the Yankee and Armenian troubles may do to affect prices."

THE RE-EXPORTS OF CEYLON AND INDIAN TEAS.

One of the most striking features of the reports periodically furnished by Messrs, Gow, Wilson & Stanton on the statistics of the tea trade is the statement given therein as to the re-exports of teas from the United Kingdom. The Report before us gives the figure for the re-export between the 1st June and 30th November for the years 1892, '93, '94 and '95. Briefly abstracted, this statement shows that since 1892 the re-export of China tea has fallen from sixteen million pounds to nine million pounds; that of Indian teas has risen from 1,638,451 lb. to 1,992,095 lb.; while the increase in the case of Ceylon tea is represented by a rise from 1,818,154 lb. to 3,780,377 lb.! Roughly speaking, while China has fallen seven million pounds, only some two and-a-quarter million of Indian and Ceylon have been sent from the United Kingdom towards redressing this falling-off. We presume this difference—or rather this discrepancy—has been made up by increase in the direct exports from China to foreign countries. This, however, is not the point that most directly strikes us with respect to the statistics above quoted. The question we should desire to see answered is: "Why has Ceylon so far outstripped India in this re-export of teas to foreign markets?" While India during the term reviewed has added but 300,000 lb. or so to her re-export, Ceylon has added not greatly under two million lb. Certainly this difference is a very striking one. How can it be accounted for? We can hardly assign as a reason that Ceylon agencies may have been more active in their respective fields of work than those of India. After all, such fields have been mainly confined to America and Russia. In the first of them the two tea-growing countries have been working simultaneously, and, to a great extent, in sympathy with each other. In Russia, it is true, M. Rogivue has succeeded in creating a considerable demand for Ceylon tea, but we believe Indian tea has not been without representation there. Australia may be left out of comparison, because she imports most of her tea direct from the producing countries. Failing effort to account for the difference mentioned on the lines above sketched, nothing remains but to assume that there exists a preferential taste for Ceylon over Indian teas in the outside markets of the world. We do not assert that this is so, but we can hardly suggest any other probable or possible cause for the relatively rapid progress made by Ceylon teas in this matter of their re-export from the United Kingdom.

THE GOVERNOR OF THE STRAITS AND THE SELANGOR PLANTERS' ASSOCIATION.

TO HIS EXCELLENCY SIR CHARLES BULLEN HUGH MITCHELL, G.C.M.G., GOVERNOR AND COMMANDER-IN-CHIEF OF THE STRAITS SETTLEMENTS AND ITS DEPENDENCIES:

YOUR EXCELLENCY,—We, the undersigned members of the Committee of the Selangor Planters' Association, desire on behalf of our Association to offer to Your Excellency and Lady Mitchell on this the occasion of your third visit to Selangor, our most hearty and cordial welcome.

We feel sure that Your Excellency cannot but be struck by the great change in the aspect of the country, which has resulted from the rapid advancement of the coffee enterprise. We desire to tender to you our sincere thanks for the vigorous steps you have taken to forward the cause of free labour, and we trust that Your Excellency's appeal to the Madras Government to send over Delegates with a view to ascertaining the exact conditions under which the Tamil immigrant lives in this country, will result in the Malay Peninsula being thrown open to unrestricted emigration from India,

We recognise and appreciate Your Excellency's wise determination to so foster and encourage agriculture that the State may in the future derive a large proportion of its revenue for this source and not, as in the past, be entirely depended on tin.

We trust that Your Excellency will permit us, as a body of practical men, to draw your attention to various points in the policy of the Government which affect labour and the planting enterprise—points upon which we believe Your Excellency will agree with us that our opinions, as coming from those most nearly interested in the question, are not unworthy of Your Excellency's close consideration.

LABOUR.—It is felt to be a great hardship that labourers can leave the service of their employers at a month's notice without settling their liabilities, unless bound by written contracts of service. It is true that employers have their civil remedy, but as, in the majority of cases, coolies' assets are nil, it is useless for employers to try to recover advances through the Civil Court. We submit that there can be no injustice in making it compulsory for coolies to either pay or work off their advances (taking, say, $15 as a maximum indebtedness for each cooly) before leaving their employer's service.

It is claimed that written contracts obviate this difficulty, but we are of opinion that such contracts are utterly opposed to the spirit of free operations as binding the labourer to work for a fixed period exceeding a month, and we know that they are exceedingly unpalatable to the coolies themselves. We would have our labourers free to leave us at a month's notice if they choose and if we cannot so identify our interests with theirs as to make it to their obvious advantage to stay with us; but we ask that this freedom with regard to their movements should be contingent upon the proper settlement of their just liabilities, and we quote the instance of Ceylon where this principle is most strongly insisted upon by planters and recognised as equitable by the Ceylon Government. We sincerely trust that Your Excellency will see fit to meet our views in this connection before the new Labour Code becomes law.

AUCTION SALE OF FOREST OR "WASTE" LAND.—Your Excellency has inaugurated the system of selling forest or "waste" land in districts which appear best adapted to the cultivation of coffee, by auction sale; the size of blocks so sold has been limited to 320 acres approximately, and the usual clause providing for the cultivation of one fourth of the whole area within a period of five years has been inserted in all grants. Your Excellency has stated in a recent despatch to the Secretary of State for the Colonies that your object in introducing these innovations has been primarily the exclusion of the speculator in land. As *bonâ fide* planters ourselves we would record our entire approval of any measures which will achieve such a desirable result, but we are of opinion that the cultivation clause in itself is sufficient for this purpose, and moreover that the practical utility of this clause would be considerably enchanced by the issue of larger grants, inasmuch as the holder of a block of, say, 1,000 acres would find it a much more difficult matter to dispose of his land in the third or fourth year after purchase, with 250 acres to be brought under cultivation during the time that remained before the Government had the right of re-entry, than the holder of, say, three blocks of 320 acres each, who could very possibly place his land in three different quarters with the obligation attached to each of only opening 80 acres in from one to two years.

We also consider that blocks of 320 acres are insufficient in area to admit of economical working, and that the general effect of sales by auction is to put the trained planter who has selected his blocks, and spends time and money in doing so, at a serious disadvantage when

the sales come off. The land speculator attends the auction quite content to buy land that he knows must be worth acquiring, inasmuch as it is auctioned at the instance of the man of experience, and he can afford to bid higher than the other as he has incurred no preliminary outlay.

Again, if a planter desires to buy three contiguous blocks, the speculator may purchase the central one at a prohibitive figure and compel the planter eventually to buy him out at a price which leaves a substantial margin of profit for himself. Such abuses are inevitable in connection with sales by auction.

We would further ask that the delay in surveying blocks in the Kuala Lumpur District within the radius gazetted as subject to auction sales be rectified, and that blocks applied for in the above and other districts should be attended to and put up for sale with the same despatch as they are in Klang and Kuala Selangor. We would point out to Your Excellency that competition of these sales means the disappointment of at least one party, and that unless there is abundant land on offer, which there has not been hitherto, the result is one settler the less in the State.

We believe that general satisfaction would be given to the public if the Government would

(1) Construct rough service paths, of a width of six feet or so to commence with, through rich districts;

(2) Cut up and survey blocks of 500 and 1,000 acres *in advance of applications*;

(3) Price this land at a rate which the demand at the time being and completed sales would seem to warrant; and

(4) Dispose of the blocks to applicants in order as they come forward.

If such measures were adopted an intending settler would be able to make his selection, buy his land and commence operations at once, and there can be no doubt that the wide circulation of this fact would tend to bring numbers of investors into the country who are now holding off owing to the at present existing uncertainty connected with the acquisition of land.

It is of course of the highest importance that no such attempt to open up a district on the lines suggested above should be made without the soundest expert advice upon the suitability of the soil and locality for growing coffee.

Our Association hopes that the time is not far distant when your Excellency will concede to the planter the prior right to mine his own land himself, or to make arrangements for its being mined, as we are of opinion that it is an essential point that the holder of a lease in perpetuity should neither be deprived of any of the land comprising that lease, nor of the power to exercise control over such miners as, by virtue of the mineral rights retained by H. H. The Sultan, might at any period be empowered by the Government to prosecute the mining industry in the planter's land.

In cases of resumption of land by the Government for public purposes, we would again point out to Your Excellency that the existing terms of settlement by arbitration are, if not inequitable, at any rate not at all calculated to give satisfaction to proprietors. We maintain that the Court of final reference should in all cases of arbitration be composed of adjudicators without any interest whatever in the question at issue.

We do not at the present juncture desire to again urge upon Your Excellency the necessity for permitting lawyers to practise in the Law Courts, but we hope that the Administration of justice in Selangor will be one of the first points which will engage the attention of the Resident-General of the amalgamated Native States. We commend the foregoing suggestions and recommendations to Your Excellency's notice, feeling assured that Your Excellency will honour the views which we have advanced, and which we claim to be representative, with your kind consideration.

We beg to subscribe ourselves, Your Excellency's obedient humble servants,—E. V. Carey. Tom Gibson, C. Meikle, E. B. Skinner, H. Huttenbach, Committee, S. P. A., December, 1895.

PLANTING AND PRODUCE.

THE PROGRESS OF BRITISH GROWN TEA.—In our last week's issue we quoted a circular from Messrs. Gow, Wilson, and Stanton, in which figures were given or data supplied by Her Majesty's Customs, showing the growth of the tea trade, and how British-grown tea is gradually, but surely, pushing Chinese leaf out of the home market. The eclipse of China tea has continued steadily, as the following figures for the past six months testify:

	1892.	1895.
India ..	52,476,000..51 p.c.	58,285,000..51 p.c.
Ceylon ..	31,795,000..33 p.c.	41,125,000..36 p.c.
China ..	16,627,000..16 p.c.	14,493,000..13 p.e.

In 1877—not twenty years ago—China shipped 123 million pounds to the United Kingdom, India 28 million pounds, and Ceylon nil, a total of 151 million pounds. A reference to the figures given in our last issue will show the strides made since then.

DUST TEA AND PEKOE FANNINGS.—Messrs. Stenning, Inskipp & Co. in their Report state:—"Complaints have come to our notice of heavy loss in weight arising from the broken condition of the leads and packages and the subsequent leakage; we would recommend that half-chests, either of strong wood, iron hooped, or of metal, be used for such descriptions."

"PLANT MANY THINGS."—The cultivation of tea and other products will no doubt be tried, at any rate experimentally, in countries in which until recently sugar-growing has been the leading industry. In his paper, read at the Royal Colonial Institute, on "The Future of our Sugar-Producing Colonies," to which we referred last week, Mr. Justice Condé Williams made reference to the possibility of further developments of tea-growing experiments. He urged upon the colonial planters the necessity of turning attention to the cultivation of tea and other products suitable to the soil. Of Mauritius he said, speaking of the difficulties attending sugar planting: "But where, as in this interesting and beautiful island, there remains to a community the possession, in addition to great natural resources, of a fund of unexhausted intelligence, pluck and spirit, as was abundantly manifested after the terrific hurricane in the island of 1891, and the fire of the following year, there is no room for absolute despair of the future. And Mauritius possesses certain resources which are still largely undeveloped. Not the mineral resources of British Guiana and Queensland, which add to the prosperity of a colony by leaps and bounds, but such as consist in new and varied species of agricultural production—vanilla, tobacco, fibre, and tea—suited to development by small cultivators, such as are found among the rapidly increasing body of Indian 'ryots' of the island, who, so far, have devoted their energies mainly to the production of vegetables for the insular market, and of sugar canes." Referring to Natal, Mr. Justice Williams said: "Natal, in past days was called the 'Colony of Samples.' And if that were scarcely a respectful title to confer upon this plucky and salubrious little colony of South Africa, still less would it behove us, in view of today's three principal staple exports of Natal, to pronounce her the Old Lady's Colony of the future. Yet tea, sugar, and coal are fireside essentials of the first order. And of tea, the latest annual output in Natal is said to be of 700,000 lb. from 2,500 acres under cultivation.' Planters everywhere are learning the lesson which Mr. D. Morris, of Kew, has tried to teach—viz., that "the history of all essentially agricultural communities teaches us that there is safety only *when we plant many things*; or, in plain words, in agricultural as well as in commercial enterprise, it is not well to place all our eggs in one basket."

AGRICULTURE AND CURRENCY.—A paper was read at the Imperial Institute last week by Mr. W. E. Bear on "Agriculture and Currency." The reading of the paper was to show the advantages at present enjoyed by the Argentine over India and other countries in the production of wheat. The paper pointed out that the fall in prices since silver was demonetised in certain important countries was too well known. A

strong opponent of bimetallism, Sir R. Giffen had estimated the market value of the agricultural products of 1891 at £76,000,000 less than they would have been worth at the prices of 1871, and there had been a great further fall in most of the commodities since 1891. It was stated that the value of products sold off the land in 1894 was less than that of those products in 1874 by £88,000,000. No other commodity illustrated the effect of the artificial fall in prices so strikingly as wheat, which had been steadily going out of cultivation in the United Kingdom. The circumstances which caused a depreciation in currency to stimulate exportation were the maintenance, or partial maintenance, of the purchasing power of the depreciated currency in the exporting country in relation to the expenditure of the producers of the goods exported, and the ability of shippers to pay prices in currency high enough to yield satisfactory profits to the producers. The price of wheat in Europe had been so extremely low that export from India had been barely profitable, even with the advantage given by the fall in the gold value of the rupee. The Argentine Republic, with much greater currency advantages to exporters, had taken up the position recently held by India as third among the great wheat-exporting countries of the world. Previous to 1887 Argentina had never exported as much as half a million quarters of wheat in a year, and it was not till 1890, when 100 dollars in gold were worth 261 dollars in paper, that the period of extensive exporting began. Then the exports continued to expand till in 1894 they reached 7,648,000 quarters, including flour. The expansion was attributed to the high gold premium which had existed for the last eight years, and particularly the last four. The actual price of growing the grain, purchasing bags, and delivering it at the railway had been sent down at about 9s a quarter in a productive year, with gold at 350; that was when the gold premium was at 250 and 100 dols of gold exchanged for 350 of paper. Railway and ocean freights and other charges might bring the cost of landing wheat in England to 10s a quarter, and the balance of any price in excess of that sum was the profit to be divided between the owner of the land and the grower. It was only for a few weeks in 1894 that the price of wheat in England was under 20s. When Mr. Gastrell, the British Vice-Consul at Buenos Ayres, wrote his report in August 1894, the price had not fallen below 13s on rail in Argentina, while the exchange value of 100 gold dollars was over 350 dols in paper; therefore the growers were getting 45s 6d a quarter in their paper currency. Can producers stand up against such a tremendous handicap as that? With the advantages existing, the Argentine grower would be able to undersell the rest of the farmers of the whole world. —*H. & C. Mail*, Dec. 20.

THE WYNAAD

(*Communicated*)

The little book of 63 pages (demy 8vo) by Francis Ford is a concise and admirably written description of Wynaad and the Planting Industry of Southern India; giving exactly the information intending investors require without any unnecessary padding. Investors there are, not a few, unfortunately, being now driven from this island by the utterly mistaken policy of the Ceylon Government in reserving lands, hundreds of thousands of acres of which might safely be made available for cultivation; and a considerable portion of which lies alongside the rail, way to Uva, the very existence of this land indeed, being one of the chief recommendations for undertaking the important and costly extension. The land, as it is, is valueless, and answers no earthly purpose. Sold to the planter, it would realize from R150 to R200 per acre, and soon be clothed with a vegetation closer and more verdant than in its primitive state, greatly adding to our chief industry and converting a non-paying into a highly remunerative railway. The only effect the present prohibition of land sales has had is to enhance for a time the value of existing estates, which, for no other reason, have 'boomed' up to figures unprecedented in the history of either tea or coffee; and, secondly to turn away intending investors to search for other lands by which they hope to compete successfully with the Ceylon planting industry.

For this purpose, there is not a more convenient and promising field than the *Wynaad*, which, as we are here reminded, is "A Hill district in the Madras Presidency, to the West." Its general elevation is from 2,000 ft. to 4,000 ft. It enjoys a good climate; its fertility is unsurpassed and its scenery wonderful. To the east rise the Nilgiri Hills or Blue Mountains as the name implies. This range has an altitude of 6,000 feet with peaks running up to 8,000, while to the north-west the chain of ghauts stretches away into the rugged little province of Coorg, famed for its coffee; area about 1,020 square miles; rainfall from 50 up to 200 inches. We might, perhaps, be inclined to demur a little to the statement that "Wynaad is admittedly as favourable as Ceylon in respect to climate and far superior to both that island and Assam as regards a cheap labour supply," but, as to the suitability of the land for tea, there does not seem to be any room for doubt; and we suspect that if the present deplorable policy of our local Government continues, it can only be a question of a very few years when Southern India will outstrip Ceylon in the yield of all her pet products.

Coffee seems again to be profitably cultivated in these bamboo lands of which we have nothing analogous in Ceylon:—

"Experience has proved that there are localities in the Wynaad, notably Sultan's Battery and Nellacotta, where coffee flourishes excellently. ...... Shade and manure are essential to success; by means of them the planter is able now-a-days to hold his dire enemy *Hemileia vastatrix* at bay. An official statement of profits, on a block of estates, lately published, shows that the owner has made in ten years a net profit of £77,000 off 992 acres. In one season alone (1892) the net profit was no less than £18,000."

But it is to tea that the present race of crushed-out planters in Ceylon will most naturally turn, and here we have a descriptive report backed up by authorities and figures which seem to us unimpeachable.

"Tea is a product," says Mr. Ford, "which has been grown with such excellent results that the Wynaad promises to be one of the most paying districts in the East. 1,500 lb. per acre has been made on an estate in South Wynaad,": —and he quotes from the report of our own Wm. Taylor—than whom we have few better authorities—that "the nature of the soil is a sandy loam with some laterite; well suited for the growth of tea as proved by the size and vigorous appearance of the bushes—the lay of the land is mostly easy and undulating, and I may say that, as far as soil, lay of land and climate are concerned, this part of Wynaad would compare favourably with the bulk of the tea districts in Ceylon." Mr. Taylor, who, by the way, has just called upon us while writing this, remarks; "Yes; quite true; but they will have to go in for a better jât. Of all the rubbishy jât I have ever seen, the Wynaad can show the worst, and yet they get crops—marvellous flushes—but what might they not get with a better jât and better planting?" The author backs Mr. Taylor's opinion up by that of Mr. W. M. Standen, a

thoroughly practical tea planter enjoying a high reputation, who gained the prize for an essay on tea cultivation, in which he states that the few acres of tea planted in different parts of Wynaad are "showing such a vigour of growth as could hardly be excelled either in Assam or Ceylon."

The localities in Wynaad, where tea can be cultivated with the greatest success, we are informed, are: Vayitri and Meppadi in South Wynaad, Cherambadi, Pudalar and Devala in South-East Wynaad. "There is forest land still available, and whenever the cultivation of the tea bush is vigorously prosecuted, prosperity awaits Wynaad."

And yet the planter is not allowed to suppose that he has found a perfect paradise. As in Ceylon, the anxious planter will always have cares and troubles enough with labour. "As the law now stands," we are told, "protection is given to the scoundrel and fraudulent contractor: the planter has no redress." Much is expected from the coming Governor—Sir Arthur Havelock—to redress grievances and place the planter in a better position than he has hitherto held in Southern India. "This able statesman," says Mr. Ford, "has for the last five years been Governor of Ceylon, so he comes to the Presidency with the full knowledge of the value of the industry. One of the first things that will probably strike him when he arrives in Madras is that, whereas planting in the island he left was the backbone of the State, in the peninsula it is but one of many interests. But he will have realised in Ceylon what private enterprise is capable of achieving." Altogether, although we regret the necessity that has arisen, we think young aspiring planters in need of more elbow room may do worse than follow in the wake of Governor Havelock.

The author gives some very pithy and excellent advice to the young planter. "The qualities most needed on an estate," he is told, "are keen observation, untiring industry and consummate patience. After the newness of the life has worn off, the daily routine grows monotonous, the close inspection becomes a drudgery; but, if a man gives way to his feelings, the sooner he throws up the life the better for him. Patience, consummate patience, is needed in dealing with coolies, and he who cannot control and manage his labour will never be a good planter."

We have thus glanced over and indicated the contents of a very useful and interesting little volume, which let those looking out for pastures new buy and read for themselves: it is published at the *Madras Mail* press and only costs R1. We have now only to repeat our regret that there is no more scope for investment of capital in this island, but we venture to predict that, before many years are over, our Government will regret its present policy. We were amongst the first to suggest and agitate for railway extension; though assuredly, had we known that the extensive tract of available forest through which the line passes to Haputale was destined for ever to remain a wilderness, we should have been no party to the advocacy of a railway by that route.

PLANTING IN MATALE.

We were in error in stating elsewhere that Elkaduwa *Group* had given 800 lb. per acre all round over 300 acres: it should have been an estate in the Elkaduwa *District*. We are glad to hear however that some fields on the Elkaduwa Group have also given close on 800 lb. per acre, but not to such an extent as 300 acres. Two well-known estates not 100 miles from Matale, have given 750 and 800 lb. per acre from 300 and 209 acres respectively. Not so bad for good old Matale, the once much pitied district.

PLANTING—PATENTS.

The following Grants of Exclusive Privilege have been granted under the Inventions Ordinance during the half-year ended December 31, 1895:—

No. 449.—To William Jackson, of Thorngrove, Mansfield, Aberdeen, North Britain, engineer, for improvements in or connected with stoves or apparatus for drying tea leaf, coffee, grain, or other produce.—July 7, 1895.

No. 458.—To Clive Meares, of Wangi-oya estate, Talawakele, and James Brown, of Hatton, engineer, for improvements in machinery or apparatus for improvement in wire-shoot runners.—July 7, 1895.

No. 471.—To William Alfred Gibbs, of Gilwell Park, Sewardstone, in the county of Essex, England, for improvements in or connected with furnaces for the production of hot air for drying or other purposes.—July 21, 1895.

No. 466.—To Samuel Cleland Davidson, of Sirocco Engineering Works, Belfast, Ireland, for improvements in apparatus for withering tea leaf or exposing chemical or other material to hot or cold air or a mixture of air and vapour or gases, also for drying yarns, cloths, and other substances.—July 21, 1895.

No. 459.—To Samuel Cleland Davidson, of Sirocco Engineering Works, Belfast, Ireland, for improvements in centrifugal fans, and in apparatus connected therewith.—July 21, 1895.

No. 470.—To Samuel Cleland Davidson, of Sirocco Engineering Works, Belfast, Ireland, for improvements in apparatus for withering or limping tea leaf in the course of its manufacture into black tea, or for the finishing or facing of green tea preparatory to its being packed into chests.—July 21, 1895.

No. 429.—To C. J. R. Le Mesurier, for invention for compressed fuel.—August 15, 1895.

No. 461.—To Samuel Cleland Davidson, of Sirocco Engineering Works, Belfast, Ireland, merchant, for improvements in apparatus for exposing tea, coffee, cacao, grain, and other substances to the drying or other action of air, vapour, or gases.—September 16, 1895.

No. 476.—To Robert Thomson, of Kenning Park Engine Works, Kenning Park, in the county of Renfrew, Scotland, engineer and tea planter, for improvements in apparatus for withering tea leaf.—September 16, 1895.

No. 473.—To Augusto Ferreira Ramos, Civil Engineer, of San Paulo, in the State of San Paulo, Republic of Brazil, for improvements relating to the drying of coffee, grain, fruit, and to other materials, and to apparatus therefor.—October 7, 1895.

No. 480.—To Samuel Cleland Davidson, of Sirocco Engineering Works, Belfast, Ireland, merchant, for improvements in smoke-consuming furnaces for boilers and for air heating stoves.—November 11, 1895.

No. 465.—To Samuel Cleland Davidson, of Sirocco Engineering Works, Belfast, Ireland, merchant, for improvements in steam engines and in means for driving high speed shafts therefrom.—November 11, 1895.

No. 468.—To Dr. A. S. Lethbridge, Indian Medical Service, now of Calcutta, for invention for making glazed tea.

No. 472.—George Robson, Manager, Fairfield Ironworks, of Slave Island, Colombo, for invention for willowing or cleansing fibre and freeing it from dust and other extraneous matter.—December 4, 1895.

No. 474.—To Alfred Horatio Bell Sharpe, of 32, Charlesworth terrace, Foss Bank, Lincoln, in the county of Lincoln, engineer, but now residing at Spence's Hotel, Calcutta, for improvements in machinery or apparatus for drying leaves of the tea plant, the same being applicable for drying analogous substances.—December 4, 1895.—*Government Gazette*, Jan. 10.

GEMMING IN CEYLON.

We take the following from the London letter of an evening contemporary :—

Doubtless such a welcome will be given to a new undertaking, that more will be heard of very shortly in connection with gemming and gold finding. Four undertakings of a similar natnre have now been commenced in your island, and all have, I believe, ceased operations upon the grounds of the difficulty, not of finding gems, but of getting them brought in by the natives employed in finding them. I think it was Mr. Gow, of Gow, Wilson, and Stanton, who said "Gemming will never be successfully carried on in Ceylon until a means is found, or a machine invented, to prevent the native hands from picking and stealing." Undoubtedly, in mining for gem stones, the chief difficulty has been to actually secure the gems which pass from the washing machines to the picking tables. The lack of success of so many gem-mining ventures of late is mainly attributable to failure to detect gems on the picking tables, and actual theft of really valuable stones. The new company I speak of hope to change all that. A machine, the Automatic Gem Separator (Lockhart's Patent), takes the place of the picking tables, and, thus eliminating the greatest cause of loss, renders mining in such countries as Burma, Siam, India, Ceylon, and Australia practicable. After being dug from the mine or pit the gem-bearing ground passes, without handling or the possibility of being tampered with, through the washing plant to classifiers of special construction which size it and pass each size to the separator. Each separator selects its gems automatically and deposits them in a locked receptacle, rejecting the worthless gravel and allowing it to pass off as tailings. The process is essentially a continuous one, and, as there is absolutely no wear on the separators, their action when once regulated remains constant. Water is the only agent employed in the separation. It can be used over and over again, and, as the head required for effective work does not exceed ten feet, only very moderate pumping power is necessary to serve a large plant where a constant supply is not available. These separators are capable of greatly reducing the heavy concentrates from the machinery at present employed ; and for alluvial gravels such as are found containing gem stones in Burma, Ceylon, and other parts of the world, the reduction ranges as high as over 95 per cent. I have this week had an interview with the inventor, and, from my two and a half years' residence in the district, Rakwana, where operations are, I think I gathered, already commenced or commencing, I was able to supply him with some information which was interesting to him. Already 25 acres of good ground have been secured, which provides a pretty good area for gemming. I was shown a very nice selection of stones—sapphires, amethysts, rubies, and others. Also a piece of gold which was found by simple washing, and a small nugget that had been extracted without difficulty. If this new operator could only show that gold in paying quantities is to be found in Ceylon, what a lift it would give to the colony. At least 50 tons of soil can be treated daily, and, if each ton produces, on a moderate estimate, 10s per ton (Mr. E. G. Harding, I hear, considers that estimate within the mark), the new undertaking, the capital of which is not heavy, should have a successful future.

This afternoon I have had the opportunity of seeing at the premises of Mr. W. S. Lockhart, M.I.C.E., at Great Suffolk Street, Boro', the gem-separating machine. It seems certainly a most ample yet ingenious invention, and is very simply worked. The soil is put by a cooly into a receptacle. All is worked by water. This receptacle enables the large stones, roots, and grass to be got rid of. Thence the residue is carried by the force of water into a receiver, which again separates the soil and smaller stones. What is then left is only gravel and gems. Into half a bucket of gravel, which had come from Ceylon and was largely mixed with iron stone, 32 different gems were mixed. This was then placed in the separator. By virtue of the slight difference of the specific gravity, the gravel was separated from the gems, the lighter gravel floating upwards by the force of the water, and falling into the tailings heap, and the heavier gems falling into the locked receptacle below. Not one was missing, the whole 32 came through, but there were also a few iron-stones which were perhaps exceptionally heavy. This was a fault on the right side. The proportion of gravel was about 99¾ to ¼, or perhaps much less, of gems, and the machine most accurately rejected the stuff without value, and preserved the gems. Another operation, showing how small gold pieces could be washed, was shewn. A small nugget, the size of a pea, came out of a machine almost by itself out of half a bucket of heavy Indian gravel, half composed of garnets. The machine could be set to separate garnets from gravel, as I saw had been done. Then a tiny piece of alluvial gold and 12 minute shot were put in to demonstrate soil washing, and separated as accurately. No constant attendance is required. The machines will go on from 1st January to 31st December ; water only is wanted to work it, and without breaking it no cooly can get at a single stone. I think Mr. Lockhart, who is a thoroughly practical man has got what is required. So far it has not been a case of stealing the gems, but taking them. If, now, all that are found are secured, gemming may not be so entirely in the hands of the natives as it is at present.

Talking of gemming, there was one spot I always thought might yield a splendid harvest of gems, and that was the ground around and running away from the store at Nahaveena, Rakwana. It lies at the bottom of a lay of land, all natives used to assert, famed for gems. Goodness knows to what depth operations might be carried, and possibly enough lies beneath that waste piece to pay for the value of the estate, even at the price Mr. Layard purchased, a good many times over.

INDIAN PATENTS.

Calcutta, Dec 27th, 1895.

For a new process of tea manufacture.—No. 411 of 1895.—August Schulte, im Hofe, Ph. D. of Freiburg University, in Germany, temporarily living at 1, Vansittart Row, Calcutta.

For a combined wood and cast iron plate sleeper for metre gauge railways.—No. 155 of 1895 James Connor of Yalgivi, in British India, Permanent Way Inspector, Southern Mahratta Railway. (Filed 14th December 1895.

For an improved tea, coffee or hot water boiler —No. 201 of 1895.—Gopal Mahadeo Vidwans, draftsman, Sanitary Engineer's Office, Bombay, Presidency, Poona. (Filed 16th December 1895.)

For improved method of and apparatus for removing sand and like bars or banks in rivers and tideways, and for deepening the same.—No. 147 of 1890.—M. J. M. B. Baker's invention. (Specification filed 16th September 1891.)

For a new or improved method of treating and prepari[illegible] and blending the same for infusion,

together with tea, coffee, cocoa, and other substances for which such prepared hops are applicable—No. 20 of 1891—Mr H. A. Snelling's invention (Specification filed 18th September 1891.) *Indian & Eastern Engineer*, Jan. 4th

BRITISH CENTRAL AFRICA.

(From the *British Central Africa Gazette*, Zomba, Oct. 15th, 1895.)

It is matter of considerable satisfaction to know that since the return of Mr. Robert Buchanan to British Central Africa, by the improvements in method of preparing tobacco which he has introduced, Messrs. Buchanan Brothers have now been able to place on the market a supply of native grown tobacco as good as any average kind imported from abroad. Smokers pronounce the samples submitted to them to be excellent, and a large sale is already springing up. Mr. Whyte has examined this tobacco, and has furnished us with the details on which this note is founded.

Since at the present time we are almost wholly dependent on coffee as our main export, the action performed by Mr. Buchanan Brothers, in showing that really first class tobacco can be grown in this Protectorate, is a matter of something more than local importance. This enterprising firm deserves the thanks of the community for adding an important and prosperous industry to the few other inducements which tempt Europeans to invest their capital in this Protectorate.

Showers of rain—some of them very heavy—have been falling in the Mlanje and Zomba Districts, and possibly elsewhere in the Protectorate during the month of September, a very unusual occurrence for the time of year. On the 1st of October, a great deal of rain fell at Zomba, and we understand that as much as two inches were registered on the same date at Fort Lister. in consequence of this unusually moist "dry" season, very few bush fires have taken place, and although bush fires are not really beneficial to the country under ordinary circumstances, they are actually much needed at the present time for the destruction of the locusts. This plague is certainly diminished in intensity. Mr. Marshall reports that the Tanganyika District is now almost free of locusts and they are little heard of on Lake Nyasa. They continue to swarm on the top of Zomba mountain on the upper plateaus of Mlanje in the vicinity of Fort Lister, on Mount Cholo, and on the hills in Matipwiri's country. It would almost seem as though locusts were beginning to prefer the elevated regions to the plains. The have up to the present done little or no damage to gardens or crops. Nevertheless, for the last week they have visited regularly every day the Residency grounds, but the firing of guns, shouting of men, and beating of drums have been up to the present effectual in dispersing them.

AUSTRALIAN FLOWERS.

"There is nothing," we are told, "that astonishes the stranger visiting Australia for the first time so much as the variety and beauty of its flowers." Australia is, indeed, a land of floral loveliness, and nowhere has Nature been more lavish in her gifts of bud and blossom than in New South Wales, where, at almost every point, the landscape is an endless panorama of surpassing beauty. There is a plethora of colour in the flowers that everywhere meet the gaze. "They are not placed here and there only, to give one the impression of limit; they cover mountains and valleys in all kinds of form and shades of beauty. Climbers, rich in crimson, and interspersed with every other colour, are multiplied by millions, and scattered with a prodigal hand that knows no stint nor bound, save that of magnitude itself, until every shrub and plant and bush, robed in splendour, makes the country gay with blue and gold, and many coloured dyes." The gorgeous colouring of the Australian floral kingdom is hardly to be excelled elsewhere. Among the favourite native flowers is the stately Waratah, or Native Tulip, as it is sometimes incorrectly designated. It grows to the height of four or five feet, the slender stem being surmounted by a large dahlia-shaped flower of the deepest crimson. It is sometimes grown as a garden flower, but thrives best in the bush. Ths Native Rose, which has no resemblance, save in its delicate pink tint, to the favourite garden flower, is exceedingly plentiful. The blossom is small and modest, but wonderfully enduring, and forms a charming addition to an Australian bouquet The Rock Lily, of which a beautiful specimen, embedded in ice, was lately sent to the Queen, is so called from its being most abundant in rocky country, where its masses of yellowish-white blossoms stand out in picturesque relief from the dense background of dark green foliage. The Gigantic Lily is, perhaps, the most magnificent of Australian native flowers. From a cluster of gracefully bending leaves, rises a stalk to a height of from ten to fifteen feet, crowned with about a dozen crimson flowers, forming a kind of natural bouquet, about a foot in diameter. The Magnolia grandiflora is found in parts of the mountain regions, its large white flowers and delicious fragrance rivalling those of the cultured plant. The wild Lobelia is sometimes found as abundant as buttercups in an English meadow, but its presence is much disliked by pastoralists, as cattle will not eat it. The red flowers of the Trumpet Jasmine are very beautiful, as are also the pale-yellow flowers of the wild Honeysuckle, while the rich masses of Golden Wattle-bloom are among the loveliest attractions of an Australian landscape. The Christmas Bush is, perhaps, the most popular of all Australian flowers. It takes the place of English holly as a Christmas decoration, the flowers being small and of a reddish tint. Large quantities of the flowers are sold in Sydney at Christmas time. There are many other flowers no less beautiful, such as the Flannel Flower and Native Fuchsia, but the foregoing will serve to illustrate the rare and unsurpassed beauty of the floral wealth which has made Australia a botanical paradise.—*Colonies and India*, Dec. 21.

WILD COFFEE.

On his recent journey to the Mlanje District, H. M. Commissioner made an interesting discovery. In the valley of the little Nyungwi stream which flows direct into the Ruo about ten miles west of the confluence of the Likubula and the Ruo and close to the place where the Nyungwi is crossed by the main road to Fort Anderson, the Commissioner found growing a species of wild coffee apparently identical with that which is met with in the interior of Moçambeque, on the Zambesi, and at Inhambane. By a happy chance this wild coffee was not only in blossom, but bore the ripe berries at the same time. In growth the tree was very straggling, and somewhat resembled the original cultivated coffee tree in the Blantyre Mission grounds. This wild coffee was found growing for several hundred yards along the banks of the stream. The Commissioner collected a large number of the berries, some of which were ripe, and these will be planted in the gardens at Zomba. Specimens were also collected of the leaves flowers and fruit for transmission to Kew for identification.

It has generally been stated by the Commissioner himself amongst others, that there is no wild coffee indigenous to Nyasaland, and certainly up to the present discovery, it was believed that no specimens of the wild coffee had been found by any one. The Commissioner searched diligently in almost all the other stream valleys that he crossed in the Mlanje District for other specimens of the wild coffee, but was not able to find any.

It is just possible that these trees found on the Nyungwi stream close to the Portuguese border might have had their origin in seeds of the wild Zambezi coffee accidentally conveyed there. At the same time, seeing that coffee is indigenous to tropical Africa and is found in almost all the warm parts of the continent which are not absolute deserts, it is very extraordinary that a fertile region like Nyasaland should almost alone possess no form of indigenous coffee. The Commissioner therefore desires us to publish this discovery for the information of planters and others who, by careful investigations, may succeed in discovering a wild indigenous coffee in the British Protectorate. Meantime he has no objection to the berries of the wild coffee growing on the Nyungwi stream (which is on Crown land) being gathered by any persons who may like to try the experiment of planting this wild coffee.—*British Central Africa Gazette*, Oct. 15.

PRESERVING FRUIT WITH BORAX.

One is inclined to think, judging from the successful experiments that have recently been made in preserving fruit with borax, that it should be well worth the while of the proprietors in the West Indies to send a few experimental shipments of limes, mangoes, and other fruit to London. I was told in Covent Garden that the London market prefers the small limes. Although it is perfectly true that the want of good roads, quays, and other shipping arrangements would be severely felt in some of the islands, for fruit requires most careful picking, packing, handling, even more so than eggs—and on these points, too, Mr. Meaden lays great stress—yet, considering the enormous quantity of limes and other fruit that could be grown per acre, the low price of borax, and by no means heavy rates of freight, I do not see why it should not pay to ship hand picked and carefully packed fruit to London and the Continent. I should like to see the Botanical Gardens Department of Trinidad leading the way by taking up the question, and making a few experimental shipments with a view to ascertaining which fruit stood the voyage best. I also note that Mr. George Christie, of New York, encourages the idea of a fruit trade from Trinidad, as he, too, believes that a profitable trade is to be done if growers would ship their produce in the right way and at the right time of year.—*Colonies and India.*

DRUG REPORT.

(From the *Chemist and Druggist.*)

London, December 19.

VANILLA.—A Seychelles correspondent writes: "Our vanilla industry has experienced great disappointments lately; we have had two wretched crops in succession, so that our vanilla planters have made no profits whatever for over two years. However, when I left Seychelles at the beginning of October the vanilla-flowers were everywhere showing up well (in vanilla-planting to get a flower is half the battle won), and the Seychellois were rejoicing accordingly. The exports of vanilla from Mauritius during the last three years have been:

In	1892	1893	1894
Kilos	17,100	6,990	4,130

PATCHOULI.—Fifteen bales very stalky leaves of fair flavour were offered at the last sales, and 5 of these sold at 6½d per lb.

ESSENTIAL OILS.—Lemongrass oil remain very firm: 2½d has been paid on the spot, and a bid of 2¼d c i f has been rejected. Cinnamon leaf oil has remained exceedingly firm, nothing being now to be had below 5d per oz; it is even said that that figure has actually been paid. Citronella oil is again dearer, 2s being asked on the spot. A considerable business is said to have been done for arrival, and further transactions are expected.

CINNAMON.

TO THE EDITOR "CHEMIST AND DRUGGIST."

Sir,—I read recently of a conviction for selling cinnamon which the analyst certified to be cassia, and on testing my stock get the following results:—

Pulv. cinnamomi: a decoction cooled, and a solution of iodine added, gave a blue colour.

Pulv. cinnamomi mixed with water (cold), and a solution of iodine added, gave a slaty blue.

Cortex cinnamomi, bruised in a mortar, boiled in water and the decoction cooled, gave a blue colour with a solution of iodine.

The B. P. says a decoction when cooled is not coloured by iodine.

Yours truly,

Liverpool. GEO. M. SLEGGS.

[The Pharmacopœia is wrong, for cinnamon-decoction does give a blue colour with excess of tincture of iodine. If the tincture is added drop by drop, the first drops do not give a permanent colour, probably because the essential oil absorbs the iodine; after that the colour remains. Fluckiger and Hanbury fully worked out this point more than twenty years ago, and we presume that the retention of the sentence referred to in the B. P. is an oversight.—ED *C. & D.*]

COFFEE PLANTING IN KUALA SELANGOR.

(*From the District Officer's Report.*)

During October applications were received for land from Europeans and others for blocks varying in area from 320 to 1,000 acres, each applicant proposing to plant coffee. The Resident has since given instructions to the Chief Surveyor to have 20 blocks laid out in accessible parts of the district, and these will be put up to auction at an early date. The land demarcated during October comprised 101 lots, aggregating 515 acres. The balance of land undemarcated has now been reduced to 1,885 acres. Mr E. V. Carey took up 500 acres on the Sangei Bingei Road, and an application for 320 acres was also received on behalf of Mr T. Fairhurst for land adjoining Mr Carey's application. The land in the vicinity has been very favourably reported upon. Applications were also received from Mr Cropley for 50 acres, and from Yap Ah Bosn for 25 acres, of mining land at Bukit Kamnning.—*Straits Budget*, Dec. 31.

THE AMSTERDAM DRUG-MARKET.

London, December 19.

Our Amsterdam correspondent writing after last Thursday's cinchona sales states that a very firm feeling prevailed at those auctions, and that it seemed apparent that the quinine manufacturers were anxious to have the unit quoted higher than in the November sale and therefore competed briskly at prices ranging up to 3c per unit. Of the 5,682 packages offered 5,249 found buyers, the quantity bought in representing the equivalent of 1,638 kilos of sulphate of quinine. It is expected that at the forthcoming January sale a further small advance in price will be established. The richest lot at auction consisted of 10 bales of crushed Ledgeriana bark anylysing 10·70 per cent. It sold at 42c per half-kilo, while a parcel of 11 bales from the same plantation analysing only 10·40 per cent realised 42½c per half-kilo. The difference between the officially published analyses and those made privately by the manufacturers seems to have been larger than usual. A few lots of bark even realised above 4c per unit, but others sold as low as 2½c. Druggists' barks in quill were quite neglected and only a few lots sold. The average quality offering however was very unsatisfactory. Since the Java cinchona bark sale of December 12th, 41 bales containing about 152 kilos of sulphate of quinine and 64 cases of quill bark which were bought in at the auctions, have been sold privately at very satisfactory prices. A sale of fully 300 packages of Java bark which had not been offered in public auction at all, has also been made. No details are known, but it is said that the unit paid was fully 3c. The reports from the Continental quinine factories indicate a brisk demand for the manufactured article.—*Chemist and Druggist.*

TEA IN AMERICA.

New York, Dec. 11, 1895.

This market seems to be surfeited with trash, which sells all the way from 6@11c a pound, while low-grade teas, from 12@25c, are in great supply. Recently a line of choice Formosa sold at 62c. This class of teas, however, has a limited sale, whereas, were the American public educated to appreciate flavor and to drink tea on its merits rather than from habit, we would have the bulk of the importations high instead of low-grade. The general drift of the market is in buyers' favor. Formosa Oolongs are well held, but country Greens continue weak, as do low-grade Blacks. Dealers report a growing demand for Ceylon and India sorts. A line of fine Congous was sold at 55c.

Today at noon the Montgomery Auction and Commission Company will sell 9,226 packages, viz.: 1,611 half-chests Moyune, including some very attractive Chops; 4,001 boxes Pingsuey, new season's 227 half-chests Japan, new season's; 51 half-chests Japan, basket-fired and sun-dried, new season's; 209 half-chests and boxes Congou, new crop; 25 boxes Capers, new crop; 28 packages India, Java and Pekoe; 664 half-chest and boxes Amoy, new season's; 370 half-chests Foochow; 2,010 half-chests and boxes Formosa, new season's, and including an invoice of the well-known "Black Bear" Chop.—*American Grocer.*

PLANTING AND PRODUCE.

THE SUPPLY OF TEA AND THE MARKET.—Now that public sales of Indian and Ceylon tea have ceased for the year, the last auctions previous to January 2 having been held on 19th Dec. it will be seen that the quantities brought forward were large; but the demand was good, nevertheless, and prices were not affected by the unusually big supplies. From the beginning of June to date the increase in the quantity of Indian tea offered in London has been 58,864 packages, and of Ceylon 51,287 packages, the shipments from Calcutta during the same period having been 7,640,000 lb. greater than in the corresponding portion of 1894.

THE NEW FASHION.—As we mentioned some weeks since, a singular fashion is becoming popular in England. It is the habit of smoking cigarettes composed of tea in place of tobacco. Some ladies have conceived a passion for this new luxury. There are already in London special shops where tea cigarettes are sold, and there is talk of a club, the members of which are leaders of fashion, and who smoke nothing but these tea cigarettes.

INDIAN TEA IN AMERICA.—The following advertisement is taken from the *War Cry* of December 14, 1895, published in New York: "There is no doubt whatever that India and Ceylon teas are the best in the world. The difficulty in this country has always been the prices. Hitherto it has been almost impossible to get a pound of good India and Ceylon mixture under 1 dol. Many, therefore, have had to buy the cheaper and commoner teas, owing to their inability to pay the price asked. Now, however, guaranteed pure India and Ceylon mixtures can be bought from us at prices within the reach of everybody. Read the following extract from a letter just received: 'I have compared your India and Ceylon mixtures with those of seven other wholesale firms with whom I have been dealing, and must, without hesitation, give yours the palm. It is more pungent, and has that rich flavour only to be seen in the finest teas of these particular grades. I am ordering 100 lb. and you can look for larger orders in the future.' Auxiliary Blend, 60c. This is a mixture of India and Ceylon teas of the choicest and best of grades. Memorial Mixture, 50 cents. A mixture of same teas, unrivalled for quality and cheapness combined. In one pound or half-pound packages. These teas can be bought through our officers all over the United States. If you have any difficulty in procuring them, write to Trade Secretary, 120 to 124, W. Fourteenth Street, New York."

MOCHA MAINTAINS ITS REPUTATION.—It having been alleged that Mocha coffee is not all that poets and coffee drinkers have painted it, and that it is sometimes mixed with Java and Singapore descriptions at Aden, there has been some stir on the subject in the latter port. The Aden Chamber of Commerce issued a circular denying the accuracy of the reports. It appears that in the course of the present year 1 790 bags of coffee have been received at Aden from Bombay, Singapore, Java, and the Malabar coast. A detailed statement of these imports is given in the circular, on the authority of the Assistant Political Resident at Aden, Lieutenant-Colonel W. B. Ferris, in which it is shown that 1,209 bags have been exported and 581 bags still remain in bond. Thus the whole of the imports are accounted for. Colonel Ferris adds that as the imported coffee is kept under lock and key by the Customs Department, and is exported under the eyes of the Customs officers, it is "hardly possible" that any of it can have been used for admixture with the superior Mocha or Harrar. Official statistics, furnished by the Assistant Resident and appended to the circular, indicate that the imported bean is sent to Zanzibar, Mokalla, Muscat and other minor neighbouring ports, where it is understood to be used for local consumption, its relative cheapness being regarded as sufficient compensation for its inferior quality.

PLANTING ON THE NIGER COAST.—A report presented to the Government from Sir C. MacDonald refers to experiments made in the Botanical Gardens, Old Calabar, including the cultivation of the tea plant. The curator says: "The growth that the coffee plants first planted in the gardens have made has been excellent. These trees, that are only twentyseven months old from the time of putting in the seed, average a little over 6 feet high, with a fine and well-formed head, have all flowered, and would have borne a fair crop had they been allowed to do so. For experiment I left one of the Arabian coffee trees to seed, and have just lately gathered a few berries. Another large undertaking in connection with the Department has been the laying out of an orchard to the extent of about ten acres. There are at present over 300 varieties of plants under cultivation in the gardens, and a number of varieties of useful seeds have recently been planted, including mahogany (Swietenia mahogani) and sisal hemp (Agave rigida). Also I brought one with me from England a valuable consignment of economic and ornamentel plants, most of them arriving in good condition. Among these are nutmegs, Pará rubber, tea, and cascarilla (Croton cascarilla)—introductions that, in my opinion, will in time prove of value to the country."—*H. & C. Mail*, Dec. 27.

TEA IN AN OLD COFFEE DISTRICT.—It is quite cheering to hear, from an experienced planting visitor to the district, so satisfactory an account of tea on a great number of old Matale East coffee estates. What will former residents like Mr. Stewart Jolly and "Old Colonist" say to Midlands, for instance, being quite a picture in tea, and Nicholoya, Cottaratenne, Dangkande, &c., being equally vigorous—not to go farther afield? But there is room for improvement in communications: when we hear of the waste of labour, delay in transport, of a V.A. having to swim a river in order to get on, and all for the want of a bridge estimated to cost a few hundred rupees! What are the proprietors about, if the District Committee and "Peter Donaldson" of Matale fame cannot be got at? We should say that a week's loss to the estates concerned in wet weather would pay for the bridge, so it better be put up forthwith and if a pattern is wanted, there is poor C. G. Burnett's bridge on the Marragalla side, of which he used to be so proud ten years ago, and we suppose still a memento of his engineering skill?

THE COMMERCE OF CEYLON IN 1895.

Following up the brief notice we have already given of the Commerce of Ceylon during the past year, the following review from a business point of view with which we have been favoured will be read with interest:—

IMPORTS.

RICE.—The annually increasing quantities imported indicate the presence of a large immigrant population in connexion with agricultural operations, as well as prosperity throughout the island. The figures for 1895 are the largest on record, viz. 7,356,778 bushels against 6,476,592 in 1894.

COTTON GOODS.—As a result of cheap cotton in 1894, and in the early part of 1895, our market was over-supplied with cotton goods from Europe, and a state of glut has almost become chronic, whilst prices that are obtained are, for the most part, unremunerative. The number of packages of greys imported was 2,888 and of coloured woven goods 1,009. During the latter half of 1895 imports have shown a tendency to fall off to an extent more in keeping with requirements.

METALS.—A large business has been done in metals and hardware and tea requisites, during the past year. A considerable portion of the goods coming under this head and many varieties of shop goods are now obtained from foreign manufacturers, chiefly because of their more suitable appearance and cheapness, compared with the same articles of British manufacture.

The Secretary of State for the Colonies seems anxious that such trade should be secured for Great Britain, but unless the manufacturers there can adapt their wares and their prices to suit the requirements of buyers, the tendency will be for trade with foreign manufacturers to increase.

KEROSINE OIL.—The importation in bulk and the working of the tank system seems to be answering the purpose well, but the consumer does not seem to derive much benefit as far as price is concerned, whilst the importation of case oil has been largely curtailed if not extinguished. The heavy rate of duty extorted operates against the extended use of oil engines, and it is to be hoped that the efforts being made to procure a reduction of it will ultimately be successful.

EXPORTS.

TEA.—The quantities exported in the last two years are as follows:—

	1895. lb.	1894. lb.
To United Lingdom	85,753.339	75,348,644
,, Contiuent	786.741	298,595
,, Australia	91,379,561	7,446,782
,, America	393,527	216,422
,, India	831,070	874,205
,, Other Countries	795,633	407,066
	97,939,871	84,591,714

The increase in 1895 over the previous year is thus nearly 13½ million lb. a larger output than was expected but the weather has been favourable for flushing, and most estimates have been exceeded.

There is no land procurable, for planting in the higher elevations in Ceylon; but a good many clearings, mostly small, have been made in the low-country, and in 1896, 100 million lb. or over may be counted upon. The shipments to Australia and the Continent of Europe generally show, on the whole, a satisfactory increase, but to Russia there has actually been a falling off, significantly showing that renewed efforts will have to be made if access is to be gained to the large tea consumers of that country.

COFFEE shows some recovery in 1895, the export having been 63,920 cwt. against 32,205 cwt. in the previous year. Prices have have been well maintained, but supplies of Brazil are reported to be very large and may cause depression in the current year.

COCOA.—The crop has been a fair one, amounting to 27,420 cwt., but prices have ruled very low and do not at the moment show signs of recovery.

CINNAMON.—The export in 1895 has been large, 2,169,527 lb. against 1,969,905 in 1894. The shipment has been largely stimulated by the high prices that have ruled during the latter half of the year, due to the operations of a syndicate in London where a "corner" was created in August-September, the effects of which have not yet passed away. To take advantage of high prices, the bushes have been cut very close, and supplies must be short until they have had time to grow again, probably till about April-May.

COCONUT OIL.—The total exports in the last two years have been as follows.

1895	1894
381,140 cwt.	487,571 cwt.

About 4,500 tons less have been sent to the United Kingdom than in the previous year, but America has taken 1,000 tons more. Prices have been depressed all through the year owing to the enormous supplies of tallow reaching England, and which can hardly be said to show any signs of falling off. The Indian import duty continues to restrict the quantity taken by that country. The present rupee price, R332·50 per ton, is a good deal in excess of the equivalent in London.

COPRA.—The trade has been of about the same dimensions as in the previous year, and, like coconut oil, it will probably continue depressed so long as Tallow is so abundant.

PLUMBAGO.—The quantity exported in 1895 was 334,921 cwt. against 339,521 cwt. in 1894—with a falling off to the United Kingdom of 1,400 tons, and an increase to the United States of about 2,300 tons. Owing to the slow revival of trade in America, enquiry has been kept within comparatively small limits. Supplies have been sufficient for the restricted demand, but it is feared these may be curtailed through the operation of legislation being enacted for the regulation of mines.

FIBRES.—In coir yarn and fibre a steady trade has been done of average extent, whilst palmira shows an increase of 4,300 cwt.

ESSENTIAL OILS.—A gradual annual increase has been shown in citronella oil, but cinnamon oil exhibits a slight falling off.

DESICCATED COCONUT shows 8,551,073 cwt. to have been exported in 1895 against 5,722,202 cwt. in 1894, and the demand for this article of our industry seems to be steadily growing.

THE NEW TEA ROOM AT MESSRS. LIBERTY'S.

As a concession to the comfort and convenience of their lady customers, Messrs. Liberty & Co. have recently opened a tea room at East India House. This is a desirable acquisition in any establishment, more especially in one like Messrs. Liberty's, where the choice of goods is so bewildering, that a shopping expedition there involves a stay of some hours. The scheme of decoration here is quite different from most of the tea rooms in London, it is approached by a wide staircase, carpeted with sage-green felt, and the walls, like those of the room itself, are covered with a tapestry paper, copied from one at Haddon Hall! The light is subdued and restful, coming through old windows, which have the appearance of the old bottle glass, only that they are tinted with varying shades of amber and yellow. They might have been taken from some old Flemish house; indeed, the whole room is a judicious blending of early Dutch and early English. The tables are tiled, and have oak rims and legs; they are in three shapes—oblong, squares, and octagonal; and are either old blue, green, or terra-cotta. The chairs are replicas of old Dutch studio ones; they are of oak, covered with interlaced leather and studded with fancy nails. The electric light and some bright draperies complete the furnishing of this comfortable apartment. The tea served is a blending of Indian and Ceylon, which Messrs. Liberty import direct.—*Queen.*

COFFEE AND CAUTION.

The way that the receipts at Rio and Santos are maintained must be very discouraging to those continental operators who, on the basis of the early estimates of this season's crop, initiated a "bull" campaign, and many must begin to question very much whether the predictions of a five million bags crop for Brazil are not likely to prove somewhat wide of the mark. Up to the beginning of last month the position looked fairly encouraging for the "bull" party, the receipts in Rio being on a comparatively small scale, while those at Santos were only of moderate extent. The total receipts at the two ports were then 2,715,000 bags, as compared with 3,071,000 bags in the previous season, and fair channel Rio for December delivery touched 69s, while May delivery stood at 68s. The world's visible supply also marked a decrease of 600 tons for whereas stocks in Europe had increased by some 1,800 tons, those in America had fallen away to the extent of 3,000 tons. But, from this time, circumstances seemed to have conspired to defeat the ends of the wicked conspirators, and their position is not now an altogether enviable one.

In the first place, the Brazilian receipts have increased in an astonishing manner, and in place of a widening gap in the totals of this and the previous season's arrivals at ports of shipment, a narrowing down of the difference to about 255,000 bags has occurred. This materially alters the prospect of a five million bags crop, 3,456,000 bags having already been received at Rio and Santos in the space of scarcely five months and a-half, leaving little more than another million and a-half bags to come to hand during the intervening period to the end of June next, if the before-mentioned estimate is to be verified. Therefore, a sharp falling away of receipts will be necessary, but up to the present there is no sign of this occurring, for although the crop movement has been somewhat smaller during the last week or so, it is still greatly in excess of that of last season at Rio, while at Santos it is also somewhat heavier.

Secondly, the trade demand has of late been very disappointing, the financial difficulties caused by the collapse of the mining "boom" and the generally disturbed condition of the political situation no doubt, to some extent, accounting for this. Consequently with supplies exceeding expectations and deliveries on a smaller scale than looked for, stocks have augmented, and visible supplies, during last month, increased to the extent of 2,940 tons, being now, according to Messrs J. R. Rouse & Co., 196,010 tons compared with 162,910 tons a year ago. Last month's deliveries were especially disappointing, falling short of that of the corresponding month by nearly 10,000 tons, but as the imports were more than 13,000 tons smaller European stocks did not increase to so large an extent as they did in November last year. Still compared with a year ago, there is shown to be over 26,700 tons more coffee in store now than then.

In the third place we have to take into consideration the prospect of the growing Brazil crop and the extent of supplies likely to be received from other sources. The blossoming of the plant throughout Brazil was accomplished under favourable conditions, and although subsequently reports were received that the Santos crop had been damaged by excessive rains no revision of the estimates accompanied them. Certainly we have not lately heard of predictions of a yield of ten million bags, but conservative and trustworthy houses have not hesitated to estimate that should everything continue favourable we may have a crop of 3,500,000 bags next season from the Rio and Santos districts. Of course much may happen between this next June to occasion a revision of the estimates. The appearance of frost during the second flowering, for instance, would cause considerable damage and greatly shorten the yield of Café das Aguas, but the fruit of the first crop having set well, we are, under any circumstances, likely to see a larger crop gathered next season than during the present one. Reports from other producing countries, however, do not point to crops in all cases being as large as last year, when it is estimated 256,000 tons was growing. But considering that the plantations are being extended and new districts are continually being opened up, it would be somewhat rash to at once jump to the conclusion that supplies from other countries than Brazil will be much, if any smaller, because somewhat reduced estimates have been received from the better known sources of supply.

One thing is certain, and that is, that while of late years the supply of fine growths has been continually decreasing the proportion of common grades has steadily increased, and therefore the quantity of coffee, such as is taken for the Continent, gradually becomes larger. These grades come into competition with Brazil coffees, and tend to diminish the rise of the latter, more especially when prices are artificially maintained, as is at present the case. The deduction is that, should the "bull" manipulation be continued, the commoner grades of other descriptions will be consumed instead of Brazil kinds, and arrivals of the latter will have to be taken up by the "bull" clique, which will in time find its holding grow to such unwieldy proportions as to become unbearable.—*Journal of Finance*, Dec. 18.

BURMA AS A MARKET FOR TEA.

Dipping into a book containing the early annals of the English in Bengal, lately published (of which more shortly), we came across the statement that about two hundred years ago tea was drunk all over India. It would be imagined that a conservative people like the inhabitants of India, who through centuries have retained their customs and habits without change, would not have lost, during the comparatively short period of two hundred years, their taste for the cup that cheers so completely as they have. The bulk of the Indian people at the present time are not tea-drinkers, nor would they appear to take kindly to the fragrant Bohea even when tempted to stray from the paths of water-drinking by the, to the Indian, almost irresistible inducement of *free* tea. Those interested in the Indian tea trade, while making heroic efforts to exploit foreign markets, bethought themselves suddenly one day of the profitable market which lay at their very doors if the 300 millions in India could only be induced to buy their tea. Small packets were made up and distributed free in their thousands, throughout the land. The people took them; some tried a cup of tea, but rejected the unaccustomed beverage, while the greater portion used the packages of tea as paperweights or for any other purpose than what they were intended for. The attempt to lead the people back to their ancient habit of tea-drinking was given up. If, however, Indian tea planters had looked a little further they would have found in Burma a few million people who might have been induced to drink their teas, as they are, for the most part, very partial to the mild stimulant. All the Mongolian races are tea-drinkers. It may be hard at first to get the people in Burma to take to Indian tea. China has been before us for a considerable time now, and the taste of the people has been long accustomed to the light teas of China. The China tea which is consumed by the bulk of the people is, also, cheap, so the Indian tea introduced here must be of a low price. Indian teas of a thin, light liquor should first be tried as a compromise between the two teas, and when the people become accustomed to the taste it will be a very short step to discarding China tea altogether in favour of the Indian article. We would seriously advise Indian planters to look into the matter. A representative might be sent over here to study the subject on the spot, and the knowledge and information acquired would be well worth the money spent on the undertaking. In a previous issue we had some remarks in favour of the cultivation of tea in Burma: the fact of a market for Burma tea being at hand in the very country should be a large inducement to speculators in this direction. We would much rather that the market in Burma was supplied with tea grown in the country, but if

this is not practicable: then, in preference to Chinese merchants being enriched, we would certainly prefer that the profit made out of the tea trade in Burma went into the pockets of the Indian planter. —*Rangoon Times.*

INDIAN TEA AND COFFEE STATISTICS.

CALCUTTA, January 10th.—Mr. O'Connor has collected some very interesting statistics on tea and coffee cultivation in India.

The tea area at the end of 1894 was 422,551 acres, viz., 154,000 in Assam, 114,000 in Cachar and Sylhet, 121,000 in Bengal, and the rest in the N. W. P. the Punjab, and the South of India. From 1885 the increase in the area has been 48 per cent., and in the production over 88 per cent. The number of persons employed is reckoned at 383,000 permanently, and 156,000 temporarily.

Coffee at the end of 1894 showed 289,000 acres under cultivation, all being, except 37,000 acres in Burma, in the South of the Madras Presidency. Mysore claims 136,000 acres, Coorg 71,000, and the Nilgiris and Malabar 45,000 acres. The yield fluctuates largely, and Mr. O'Connor remarks that the attention of local authorities might with advantage be drawn to defects which seem to exist in the statistics. About 155,000 persons are engaged in the industry.—*M. Times.*

TEA PLANTING IN INDIA.

JOREHAUT, JAN. 1.—Pruning is well in hand on many gardens. We are having superb weather, grand shooting, too, snipe being abundant this season.

DARJEELING.—Now that the Christmas and New Year festivities are over, the work of getting ready for the ensuing season has been taken seriously in hand. Matters of labour, pruning general, clearing up, and the usual could weather operations are now well in hand in most gardens.

DAM DIM, Dec. 31, 1895.—Weather has been very cold and chilly at nights of late and a good deal of sickness is hanging about. Plucking is now over and pruning is in hand. Outturns, on the whole, have been fairly good. Recruiting reports so far are favourable, and already a few good coolies are on the way up. Some of the old gardens here are extending next season.

SILIGURI Jan. 2, 1896.—The season has entirely closed here, and as soon as the seasonable destractions are over, we shall be hard at it pruning again. —*Indian Planters' Gazette*, Jan. 4.

TEA IN BURMA.

A contemporary asks why the cultivation of tea should not be added to the industries of Burma and be a paying undertaking also. When it is remembered, says the journal in question, that year by year in India large incomes are realized from tea estates, it seems a pity that such a source of wealth should be closed to Burma merely from want of enterprise. The rapid strides which tea-growing has made in Assam, a neighbouring province, may be perceived from the fact that tea alone accounts for nearly 500 lakhs out of a total value of exports of 680 lakhs of rupees during the year 1894-9. Burma possesses one advantage, and an important one, over many parts of India in which the tea plant now flourishes: the tea plant is indigenous to this country, while it had to be acclimatised and reared at much expense and trouble in India. There are, as a fact, flourishing estates in India which owe their origin to tea seed imported from some Shan plateau. The tea produced in Burma is of a coarse quality, unsuitable for liquoring and reaches the markets only as a pickled preparation. In fact, the natives do not understand the science of tea cultivation; we say science for it is now acknowledged everywhere that, in the future, scientific methods of tea cultivation will be alone admissible if the industry is to remain profitable to those who undertake it. As mentioned above, the tea planter in Burma starts with the great advantage that the plant is indigenous to the country. There is another advantage, and one perhaps as important. All the knowledge which Indian and Ceylon planters have gained through years of toil at enormous expense, all the results of most recent scientific experiments in manures, blights, and other questions of vital importance in tea cultivation are at the disposal, at the cost of a few rupees, of the tea planter in Burma. He will not be grouping in the dark as many of his Indian *confrères* have done, and through there is much still to be learned in connection with tea cultivation the planter in this country need fear no losses or failure if he goes with his eyes open.

We do not, on the other hand, blind ourselves to the difficulties to be contended with. The chief difficulty is the want of labour, although a greater one may exist in a reluctance on the part of the Government to lease land on favourable conditions. The latter obstacle would, of course, place the subject out of consideration altogether. The scarcity of labour would not be an insurmountable difficulty. Almost without exception imported labour is utilised in the Indian tea districts and we see no reason why coolies who go readily to Assam and Cachar should not come to Burma. At the worst the question of importing Chinese labour might be considered and it would be a novel undertaking to make use of her own people in the competition which is now going on with China in the tea trade.

No time could be better than the present for the production of Burma tea. Indian and Ceylon combined, through Messrs. Blechynden and Mackenzie, the Commissioners of their respective Tea Associations, are exploiting the American market in the interest of British tea, and in Australia and South Africa the taste for Indian and Ceylon teas is growing rapidly. China, which formerly possessed the monopoly of the world's market, is gradually falling behind, and when she is extinguished, as she no doubt will, the demand for British tea will be enormous and unless the cultivation is increased, beyond the supply. A start is required, and in a very short time Burma will be in the field as a tea supplier.—*Indian Planters' Gazette*, Jan. 4.

THE IVORY TRADE OF ANTWERP.

THE BRITISH CONSUL'S REPORT.

The ivory industry which, of late, has sprung into new life at Antwerp is one of considerable antiquity. In old commercial Annals of the Town it is stated that in the year 1546 a Spanish vessel, the "Santa de Maria de Victoria," was captured off the coast of Spain by English privateers. This vessel, according to the old chronicle referred to, was proceeding from the African coast to Antwerp, laden with sugar, spice, oil, and ivory, the latter commodity consisted of 340 elephants' tusks (weighing altogether about 6½ tons), and was the property of a Spanish merchant named Rodrigo de Llanos, who resided in this city. The seized merchandise was taken to London and there sold. It may be surmised that the ivory trade of Antwerp was of some importance in the 16th century, as we have evidence that skilled artisans at that time occupied themselves exclusively in ivory working. As an instance of this, the will of one Hans Van Utrecht, an ivory turner, who died at Antwerp in 1580, contains an inventory of his effects, which comprised lathes, ivory saws and tools of all kinds, rare woods, ivory, buffalo horns, and manufactured articles, such as ivory boxes, combs, seals, etc. After the termination of the Spanish dominion in the Netherlands, however, it would seem that the ivory trade languished and finally disappeared altogether. No attempt appears to have been made to revive the trade until 1887, when, in view of the rapid growth of the Belgian interests in the Congo, and in order to make Antwerp the outlet for the natural products of that country, a company was formed named the Upper

Congo Company, which interested itself largely in ivory, and succeeded in re-establishing the trade at Antwerp on a firm basis, and this town now bids fair to become the first ivory market of Europe. It is said to have already out-distanced Liverpool and to rival London in importance.

It will thus be observed that the ivory trade owes its revival almost entirely to the Congo, a fact which is proved by noting how insignificant are the importations of ivory into Antwerp from all sources except from that territory. Moreover, the markets of London and Liverpool, which formerly monopolised the ivory trade of Europe, could not have found a formidable rival in Antwerp had it not been for the regular communications between Belgium and the African coast, which were established in consequence of the intimate relations existing between this country and the Free State.

The following are the returns of ivory imports since 1888, the year in which the trade in that commodity commenced to assume importance:—

Year.	..	..	Quantity.
1888	..	..	6,400 Kilos.
1889	..	..	46,900 ,,
1890	..	..	77,500 ,,
1891	..	..	59,500 ,,
1892	..	..	118,000 ,,
1893	..	..	224,000 ,,
1894	..	..	264,500 ,,

or a total of 796,500 kilos., or 786½ tons for the seven years, representing a value of 18,000,000 francs, or say, £720,000 sterling.

During the first eight months of the current year the figures representing the ivory imports have shown a notable increase, namely, 514,482 kilos., against 264,500 kilos, for the entire year of 1894.

With regard to the total sales of ivory in the United Kingdom and at Antwerp, the following returns may be thought of interest:—

In 1894, 376 tons, of which 205 tons were fresh imports, and the remainder the residue of the stock of 1893, were sold at London, 60 tons at Liverpool, and 180 tons at Antwerp.

During 1895, 219 tons, of which 130 tons were fresh importations, have been sold at London, 43 tons at Liverpool, and 203 tons at Antwerp.

The sales of ivory during the present year took place at Antwerp on three separate occasions, and the prices ranged between 5 francs and 30 francs per kilo. (2½ lb.) according to quality.

THE TINTS OF PEARL.

We have been taught to believe that the beautiful iridescence of pearls and mother-of-pearl is caused by striations or fine grooves on the surface of the nacre, just as the iris of a dove's neck is due to the striations of the plumage; but according to Mr. C. E. Benham, although a little of the colour is produced in this way, most of it is caused by interference of the rays of light by reflection from the outer and inner surfaces of the thin layers of nacre forming the substance of the pearl. The colours of a pearl have therefore a similar origin to those of a soap bubble, or the iridescence of ancient glass which has been scaled by time.—*Public Opinion*, Dec. 27.

BRITISH NORTH BORNEO

(From the *British North Borneo Herald*, Dec. 16th.)

H E. the Governor returned from a visit to Labuan on the 7th per. ss. "Teresa," having left this on 18th November.

Captain Pinson has begun cutting billian at Dravel Bay thus tapping a new source of supply of this valuable timber.

It is satisfactory to note that good tobacco land has been found on the East Coast in a locality as yet untried by foreign enterprize. We understand that a grant has been applied for.

We are glad to hear that planting enterprize is on the increase. The agent of some gentlemen at home is putting in hemp on the south side of Sandakan Bay and they appear to meditate an extensive trial.

A firm of good position at one of the South China Treaty Ports is offering to supply coolies of the class so greatly in favour with planters at a cost of $25 per head f.o.b. As the additional cost of passage money should not exceed $8 or 10, the proposition may be worth attention. Further particulars can be learned on application to the Editor.

Dr. Seelhorst reports on Nov. 23rd that he had arrived at the river Bole and was able to say that there is a very large area of auriferous gravel on both sides of the river. He is located a little above the junction with the Tnak. A few days later he found the auriferous limestone and amphilogite and thinks so highly of the country that he is desirous of opening a better road to it at once.

We are glad to note that a large number of residents are keeping their eyes open for possible mineralogical finds. Some dozen or more specimens have been sent to the Museum or Dr. Seelhorst during the past month, one of which—asbestos—may prove of value should the commercial article be found underlying the rough outcrop from which the first specimens were obtained. Enquiries on such matters are constantly made by natives from the Hon. Curator of the Museum.

Collecting specimens of natural history seems to have "caught on" amongst our limited community some eight or nine ladies and gentlemen being interested in butterflies, insects, shells, &c., &c. As British North Borneo has a plentiful fauna and, probably, specimens new to science, we shall doubtless hear before long of a few discoveries. In one house over forty species of moth were captured in a single evening between 7 and 10 p.m.

Mr. G. Mac D. Ennis arrived by the "Banjermassin" on the 13th Nov. to take up his duties as Acting Resident, and has with the Resident made a tour round the tobacco and coffee estates.

PLANTING NOTES

BYTE.—Plenty of rain, coffee cropping feely parchment pls. 83.60 for month. Doing up roads and paths supplying and erecting a drying chamber. More pickers arrived on estate including a gang of Japanese. Coffee blossoming almost continually; question if it sets owing to the continuous rain. Cocoanuts, two of the smaller kind showing fruit spaths, planted October 1893, 26 months of age. Cocoa very promising. Application for a further 180 acres of land.

KABELI.—Much rain, coffee difficult to dry; crop for month parchment, pls. 16.67.

LOONG PIASOW.—Crop parchment pls. 2.88, heavy flush of blossom.

The heavy rains are naturally interfering with the cotton crop, although the trees at the Park Reserve and Race-course are in good bearing. Meanwhile the present backwardness will be atoned for by the larger yield which may be expected when the rainy season is over.

TEA-PEST INVESTIGATIONS.

The promised revelations by Dr. Geo. Watt, C.I.E., with regard to the different pests affecting the tea bush in Assam appear to have suddenly come to a dead stop, and it seems rather niggardly on the part of Government to step in at the eleventh hour and prevent their publication after whetting the lips of expectant tea planters for months. So far we are told a few generalisms, which makes no addition to our

present knowledge on the subject. Had the embargo come before time and money had been spent over the investigation, one would not have so much wondered at it, but now that Dr. Watt's time has been spent, and there is no recall, surely it seems a little ungracious on the part of a paternal Government to step in and say, "no further—the tea industry must pay for its information." What would the term be that would be applied were any Calcutta firm to conduct business on this principle? We fancy "Blackmail." To say the least, it would have carried more reason with it had Government, at the first start, put down its foot and said to the tea magnate world of Calcutta: "No, you are in a sufficiently flourishing condition to employ a chemist to make your own investigations, and we do not see our way to help you. But of this there was no mention, and we wonder to whom the inspiration occurred to put forward as an excuse for not publishing Dr. Watt's researches—the wealth of the tea industry! A few years back it suddenly occurred to some one in the Commissariat Department that the box was by far the most important item with regard to Indian black tea, as it could, after being emptied of its contents, be used as an almirah to keep uniforms for the Reserve, and, in accordance with this brilliant flash of economy, all attention has been paid to the outside of the platter, and the contents rank as nothing. It is far more important to examine the box and see it is properly polished, and not one screw too many or too few put in to spoil the symmetry of the lid. Can it be the same thing with regard to Dr. Watt's investigations that they really are not sufficiently far carried out to warrant their publication, and that a further period of investigation is necessary before publishing what knowledge he has gained? If this is the case, would it not be much more above board to say so, and insist upon the tea industry, furnishing any further pecuniary assistance to carry out the investigation, although we by no means advocate this course, as we consider it a duty devolving upon Government to assist all industries that are in or are likely to be in difficulties, and our own colonies set us an example in the matter, not to speak of foreign countries? Surely, the condition of Assam providing for many thousands of coolies from the other congested districts of India, aye, and continually crying out for more than are obtainable, should not be forgotten by our Governors; and should any sudden disaster, in the shape of preventible disease, attack the plant and deprive the thousands of their bread, upon whom would the greater burden fall? It is all very well for some people elated with last year's success (one which probably never will occur again) to argue that the tea industry can well afford to do all this work for itself, but the tune will probably be changed when the year's results are published, and what of 1893 and many other years we could refer to? Many business men say tea is not worth investing in, unless it gives a steady ten per cent, and we doubt very much if any going concern can boast of such a record, and in consequence we deprecate the tendency to boom tea on the results of one good season.—*Indian Agriculturist*, Jan. 1.

SCOTSMEN AS TEA PLANTERS.

The London correspondent of the *Indian Planters' Gazette* writing on 13th December says:—

The following recently took my eye in a local newspaper here:—

"An Indian tea planter writes:—I have been a planter for one year only. When I came out to India I had hardly the faintest idea what I was coming to, in the way of work, climate and play, but the inducement of an outdoor existence proved too much for me.

"I find that tea planting is a profession which is by no means overstocked. On the other hand, young Europeans with health and strength are greatly sought after, both by tea agents and managers here. The men required are Scotsmen; those of good education—that is to say, gentlemen—and engineers. Practical gardeners also will never want employment in the tea districts of India.

"When making preparation to come out, I should have given anything to have met a man who could have told me all about my new life and how it would affect my leaving Scotland. *An old planter's advice is worse than useless* as he looks on things from quite a different standpoint. Especially his description of the life and chances of getting on is misleading as he may be a successful or unsuccessful man. Then *his advice as to outfit, etc., is generally absurd.* At least I found I had made fearful mistakes through listening to the words of retired planters."

This is rather flattering to Scotsmen, but not so very complimentary to retired planters. Of course a Scotsman, whatever he might think, would be too generous to write this to any newspaper. Perhaps some of your readers of experience, competent to give an opinion will favor us with their views. I have but rarely heard an opinion expressed as to what nationalities are the best for tea planters. I once recollect a Scotch Manager of long experience being charged by a sagacious friend of mine with his partiality for Scotch Assistants, when he enumerated all the appointments made by him for over twenty years, and proved that only seven out of fifteen Europeans he had selected were Scotsmen, but stated that though he had exercised his patronage in that way, in order to be strictly impartial, judging from his experience and observation he considered Scotsmen, upon the whole the most suitable. From what I know of all the tea districts I am inclined to think that the majority of good planters have hailed from Scotland and the north of Ireland. I am not able to recall many really competent managers from the south of the Humber. Doubtless the Midland and South County or London Englishmen have very many superior qualifications, accomplishments, though they do not all go to make a successful planter. This may be felt by some to be rather a delicate subject, but still I think it ought to be discussed with the best of good feeling and taste, otherwise I would not have alluded to it.

THE LATEST FROM MR. BLECHYNDEN.

The following extract from a letter, dated New York, 18th November 1895, from Mr. R. Blechynden has been placed at our disposal:—

Since my last Report the Food Show at the Madison Square Garden has been brought to a close. In my previous letters I dwelt from time to time on the importance of our taking part in this show, and the attendance and general character of it has borne out all I said on the subject.

The most important matter in connection with this, as with all other forms of advertising, was to arrange some plan whereby those whom we influenced to buy tea, would be able to obtain the same quality hereafter. On this occasion we adopted a new plan of getting this result.

THE FOOD SHOW.

I have hitherto distributed a list of grocers from whom our teas may be obtained, but as we were now to exhibit both Indian and Ceylon teas and there was no list of grocers supplying Ceylon tea available, we agreed to try and interest the firms packing tea in packets, and obtaining their co-operation to reach distributors. A letter on the lines of the draft I sent to you in my letter of the 27th August last was accordingly addressed to the various firms here, setting forth the advantages to be gained by taking part in the show, the probability of good attendance, the system on which the show was organised and the new plan of "High Teas." The firms were invited to participate in a joint show in one booth, where India and Ceylon teas could be displayed and where each of the participants would have his day in turn. To meet the cost of the booth and the general expenses, the firms agreeing to join in the scheme were to pay $50 each by way of contribution, the entire balance of all expenses to be borne by the two Associations. This letter was sent to all the firms and agencies for packet teas of any consequence in

this city. The terms were accepted by the agent for Messrs. Tettey & Co., the agent for Appleton, Machin and Smiles, by "The Ceylon Tea Co.," owners of the "Siva" brand, and by Mr. E M Payne, owner of the "Daruma" brand—four in all.

THE TEA BOOTH.

The show opened on the evening of the 2nd October and as the building was opened for the erection of booths, on the morning of the 1st we had to work very hard to get all in readiness, which we eventually did. We had harder work than most people having no contractor, as I looked after the work myself, and as our booth is always one of some pretensions to style, and is made well and strongly to admit of seating people who lean back against it and so on. I will have the pleasure of sending you a photograph of the booth, which, as you will see, is on the same lines as we have always adopted, the doors and windows following the style of Indian architecture. Seats ran round the four sides and the door stood at one angle and the counter, where tea was made, at the other, giving the booth a novel appearance. The whole was draped with Indian goods, and hung inside and out with photos of tea manufacture, as well as the different ornamental signs of the firms whose teas we exhibited and the charts of the rise of British-grown teas in the London Market. Within the booth in the centre stood a large square table 4' by 4' upon which a round table with revolving top was placed and the whole piled up with packets of the different teas. Over the windows, inside, ran shelves, on which also the teas were displayed, and over the counter there was a bracket, from which the name of the tea being exhibited was hung and changed daily.

THE ATTENDANTS.

The staff in the booth consisted of two sales-ladies and two coloured girls. The latter stood behind the counter and made the tea, which was handed by the sales-ladies. We had in addition for the latter half of the show a young man dressed in the turban and scarlet *chapkan* of our *khitmatgars*, who stood at the door and invited people to enter and try the tea. After the first few days, when the crowded period began, his duties were more to try and keep undesirable people out, and put up the cords at the door when the place was full, regulate the number coming in to the seats available, etc. The salesmen of the different firms we had interested were in attendance each evening in turn to try and catch grocers, take orders, etc.

Visitors on being admitted were seated, the sales-ladies supplied them with tea, gave them the printed matter sent down for distribution by each firm, of which I send samples, and then tried to tell them about the qualities of tea, sell them packets and, failing that, samples. Each firm sent a supply of samples, Tettey and Appleton using well-made tin boxes enamelled in colours with their trade marks and the other two firms, being new to the business, used small baskets from China, miniature teapots, etc., more expensive and less effective than the others. Visitors desirous of booking orders through grocers could do so, and these were handed to the salesmen, or were sent up to the offices next day.

In the early part of the show, when the management got nervous that it would not be such a great success as they had expected it to be, I was able to arrange to be allowed to issue invitation cards and secured the unusual privilege of these cards being accepted at the gate in lieu of the regular tickets of admission. We issued 1,000 of these cards, each admitting two persons and sent them mainly to tea importers and jobbers.

"HIGH TEAS."

At this show an enterprising lady organised what she called "High Teas" and succeeded in interesting a number of charitable and other societies in the matter. A large hall within the building, separate from the immense Exhibition hall, was set apart for this purpose; the room was handsomely decorated by a number of the firms dealing in art furniture by way of advertisement and some of the leading caterers of the city lent their names, and in some instances, actually supplied the tables, serving what was in reality a *table d'hote* dinner, for which a charge of one dollar a plate was made. The ticket for the dinner gave admission to the room, which was nicely laid out in the manner of a good class restaurant. The *menu* included certain brands of coffee and of tea put in by way of advertisement.

I put up a booth, reaching the roof of the room, some 20 feet high, 15 feet long and 4 feet deep, in the most commanding place in the room. It was hung with Indian goods, which I had to buy from Tellery & Co., but got them at wholesale prices. The booth looked well and I had one American and one coloured girl here dressed in native costume.

HELP FROM THE SOCIAL PURITANS.

When there was some doubt of our taking part in the show, I had arranged with Mrs. Grannies, the head of the National Social Purity Organisation, to supply her at a booth she had with sample packets of Indian teas, which she was to sell for her society's benefit. This arrangement I carried out. I was able in addition to assist Mrs. Grannis in various ways and have made a firm ally, on whom I count for assistance in the future.

I should have said above that we had our cards and the tea displayed in the refreshment room attached to the show in return for the tea we provided the caterer.

We were only able to secure one day at the Cooking lectures, which are great features of these shows, when we served tea and where Mrs. Tipton gave a short talk to the ladies, who are practically the only ones who attend there.

CARTOONS.

During the show certain special advertising was done by Mr. Mackenzie in the newspapers, copies of which were sent you at the time. One of them, it will be remembered, was in allusion to the tea booth at the Exhibition and as they were "display" advertisements with cartoons, they could not fail to attract attention. The majority of these advertisements were topical allusions to subjects of the day—Mayor Strong and the Tammany Tiger; The race between *Valkyrie* and *Defender*, with Junks in the background; Crocker and Platt (Tammany leaders) drinking China tea and coffee, disturbed by Roosevelt and Public opinion with Indian and Ceylon teas. These cartoons appeared regularly every Saturday during the time the show lasted, and in my further reports I will allude to the form in which they have subsequently appeared.

In this report, as it is already so long, I will confine myself to the Food Show and write of other matters separately. The Indian Tea Association's share of the whole expenses apart from the advertising, for which separate arrangements were made between Ceylon and ourselves, will be approximately $250, for which small sum we have had a most excellent advertisement, and done more good, both directly and indirectly, than we could, so far as I can see, have done by any other means with double the sum. In calculating our share of the expenses I deduct the amount paid by the tea packers to the joint fund.—*Indian Tea Planters' Gazette*, Jan. 4.

THE "CEYLON FORESTER" for November and December has reached us. The contents of the November number are as follows:—Forest Conservancy; Extracts, Notes and Queries; Botanical Notes on Trees; Notes on Trees and Plants used for Drugs, Dyes, Oils, &c. in the N.C.P.; Ceylon Woods; Dimensions of a Banyan Tree at Admiralty House, Trincomalee; Acknowledgments; The Relative Price of Timber and other Minor Produce in the Different Provinces; Rates Paid for Timber &c. in the Sabaragamuwa Province; Notes on Ceylon Birds; Government Gazette Notifications; and Result of Auction Sale of Ebony held at the Central Timber Depôt on 7th November 1895. The contents of the December number are as follows:—Estimates for 1896; The Working of the Forest Department; Botanical Notes on Trees; Schlich's Manual of Forestry; Notes on Trees and Plants used for Drugs, Dyes, Oils, &c. in the N.C.P.; Weight of Halmille; The Mammals of Ceylon; Shikar; Notes on Ceylon Birds; Acknowledgments; and Government Notifications.

VARIOUS PLANTING NOTES.

THE PROGRESS OF INDIAN TEA CULTIVATION.—A very valuable statement by Mr. J. E. O'Conor, Director-General of Statistics to the Government of India, has just been published showing the development of the Indian tea industry. We reproduce it from a Madras contemporary in another column.

WYNAAD TEA.—The first shipment of tea from the Erramaculla Estate, one of the new tea plantations that have recently been opened in the Wynaad, has been sold in Mincing Lane at the average pice of 9d per lb. This is very satisfactory, seeing that an average of 6d per lb. is remunerative. It will be noticed that it is the same average as Ceylon tea sold on garden account for the week ending 2nd instant.—*M. Mail*, Jan. 7.

THE fruit of the India-rubber trees is somewhat similar to that of the *Ricinus communis*, the castor-oil plant, though somewhat larger. The seeds have a not disagreeable taste, and yield a purplish oil. It is a fairly good substitute for linseed oil, though it dries less readily. Mixed with copal blue, and turpentine, it makes a good varnish. The oil may be also used in the manufacture of soaps and lithographic inks. The seeds are somewhat like tiny chestnuts, although darker in colour. The Indian girls are fond of wearing bracelets and necklets made of them.—*India Rubber Journal*, Dec. 12.

TEA AND COCONUTS IN THE DUMBARA VALLEY are to be the next great successes: Mr. Robert Brown (who in April is likely to go home) has already proved the former on Rajawella, getting very handsome returns from the pioneer field, the night dew in Dumbara being sufficient to give a flush; while he has also gone in freely for the palm. The fact is coffee was found no longer to give satisfactory returns, while something had gone wrong with cacao—so on Rajawella, and, we believe, Pallekelle, tea and coconuts are likely to become the ruling products.

DIMENSIONS OF A BANYAN TREE AT ADMIRALTY HOUSE, TRINCOMALEE.—By the courtesy of Admiral Drummond we are enabled to give the dimensions of the above tree, which in height and circumference of foliage exceeds the one mentioned a few months ago in the *Indian Forester*.

	ft.	in.
Height (estimated by sextant angles)	66	6
Girth of central trunk at 3ft from ground	19	6
do do 5ft do	24	10
Supernumerary trunks and roots which have taken root No. 58		
Spread of tree in S.E. and N.W. direction	165	6
do N.E. and S.W. do	174	0
Circumference of foliage	541	0

Above dimensions were taken by Lieut. (N.) I. Tuke of H.M.S. "Boadicea" on 31st January 1894.—*Ceylon Forester*.

MR ROBERT CROSS ON CACAO.—In our correspondence column we give another valuable letter from Mr. Robert Cross on the subject of the large-growing variety of cacao and its cultivation in Ceylon. The information it contains will be read with interest by cacao planters; though it will be seen that Mr. Cross is not very sanguine as to the successful introduction of this variety into our island, unless someone goes to South America specially to select the young plants. Even then, if an attempt were made to procure plants of the large-growing prolific cacao tree from a Spanish plantation in South America, the thing would have to be gone about quietly; for, although there is now no law in those Republics to prevent the exportation of these plants, yet the natives have become extremely suspicious, owing to India and our colonies having absorbed so much of their commercial exports. Mr. Cross's hopeful words regarding the tea industry are also valuable, coming from such an experienced critic.

THE IMPERIAL TEA ESTATE COMPANY.—In "Notes from London" our evening contemporary reports the formation of this Company with a capital of £100,000 and a present issue of £27,500 for the Binoya and Mottingham estates; but in one or two respects the paragraph in which this announcement is made is misleading. In the first place the Company has been brought out, not by Messrs. Whittall & Co. of Colombo as might be inferred, but by Messrs. J. Whittall & Co., London,—a quite separate firm; and we are assured that there never was any question of a local rupee Company taking over the estates, and that the sellers were not in any way responsible for the formation of the Company. At the present market quotations of shares in a Company owning estates adjoining Mottingham the value per acre of tea is £70 stg.; while the price paid for the estates just sold is only equal to £40 an acre of tea in bearing. According to our Directory Mottingham has an acreage of 220 in tea and Binoya 441.

THE IMPORTS OF TEA INTO AMERICA.—The total imports of tea for the first nine months of 1895, compared with the same time in 1894, were according to the *American Grocer* of the 27th instant, as follows:—

	1895. Pounds.	1894. Pounds.
From China - -	32,540,574	36,323,149
From Japan - -	27,811,747	28,749,097
From United Kingdom -	2,942,273	2,852,039
From Asia and Oceanica -	1,145,961	211,730
From British North America	535,177	733,985
From East Indies -	436,649	380,022
From other countries -	23,774	8,460
Total imports -	64,436,155	69,258,482

We note growing imports of India and Ceylon tea, but not in a volume to cause much consternation among Chinese and Japanese producers that the American market is slipping away from them. The average cost of 1895 imports, as declared at port of shipment, was 13·8 cents per pound. That is not very flattering to the tastes of consumers, nor does it show much of an appreciation of the world's most famous leaf. There is wide room for improvement in the demand for fine tea.

MR. BIERACH'S TEA ADVERTISING.—Mr. S. Bierach has written from New York stating that he had just finished a Ceylon Tea Exhibit at the Philadelphia Food Exposition which had proved very successful. No fewer than 600 free cups of tea were served each day of the Exhibition, and hundreds of ladies had impressed on them the virtues of Ceylon tea. The brands on sale were those specially "run" by Mr. Bierach—the "Aryan," "Singha" and "Vihara" brands. Newspaper cuttings which have been brought under our notice corroborate the success of the Exhibit which was purely a *Ceylon* one. Mr. Bierach writes that if he cannot be employed by the Planters' Association to push the sale of Ceylon tea an exception should be made in his case and support and a grant of tea allowed him. Mr. Bierach adds:—"One thing I wish to impress upon you, is this: Ceylon should stand alone. India teas are too astringent, Ceylons are the favourites in America. Americans want good tea and will pay the price, and when the time comes your planters will be happy with better prices ruling. America has used rubbish long enough. The people are learning that what they want is a pure tea and they are quite willing to pay for a good article so you will see the importance of presenting the best."

Tea Estates Better than Five Years Ago!—Mr. Tom Gray, the veteran Ceylon planter, has returned to Colombo after a fortnight up-country ; and reports that the tea in Dimbula, Dikoya and Maskeliya looks five years younger than when he last saw it ! He thinks it sheer madness for any proprietor to sell his estate (unless forced to do so) at less than £100 the acre.

Season Reports.—The abstract of Season Reports for the month of November, 1895, published in the *Gazette*, shows that the paddy crops and prospects are generally fair, though in some parts, the recent rains damaged the crops to some extent. The general health of the people is good. Hambantota however, reports that fever prevails in some villages of the interior. Cattle hoof and throat disease is reported from Galle, Nuwara Eliya and Anuradhapura. The abstract of season reports for the month of December, 1895, has also been published in the *Gazette*. Paddy crops and prospects are generally fair. With regard to the health of the people, Mannar reports:—fever prevails to a great extent; Mullaitivu :—fever and cold very prevalent; Badulla:—fever, sore-eyes and dysentery prevalent; chicken-pox and measles prevail in parts of the Kegalle district; Galle reports cases of dysentery and chicken-pox in Wellaboda-pattu.

Frozen Flowers from Australia.—It is stated in the *Westminster Gazette* of November 28, that a fine collection of blue and white Water Lilies (Nymphæa gigantea) has been sent by a leading florist in Sydney, N.S.W., through Sir Saul Samuel, the Agent-General, for presentation to her Majesty the Queen. The Lilies were frozen in ice, and received as long ago as August last by the Colonial Consignment and Distributing Company, Limited, being stored at Nelson's Wharf, until Wednesday, November 27, when they were delivered at Windsor. In spite of the length of time, the flowers were in perfect condition, and, seen through the transparent ice, were very attractive.

Shade Tree for Coffee.—A tree that is highly esteemed as a shade for coffee in the Republic of Colombia is described in the following extract from an interesting letter addressed to Kew by Mr. R. B. White, dated Palmira, August 6th, 1895. The tree has been identified as *Pithecolobium polycephalum*, Benth., *Hooker's London Journal of Botany*, iii. (1844), p. 219. It extends to tropical Brazil, and was collected near Rio Janeiro by Miers. Mr. White writes :—" I enclose some seeds of a tree which is being used most successfully here as a shade for coffee. It has flowers in small white balls just the size of those of the Sensitive plant, pods long, flat, compressed, with 15 to 20 seeds. Pods do not open, being held together by strong marginal veins; they simply break up when rotten. No one here knows the name of this tree. I have referred it to Mr. Lehmann, and he does not know it. It is a native only of Antioquia, and grows in a mean temperature of 75° Fahr. It is fond of stony poor soil. A tree 18 months old will cover 144 square yards of ground (12 × 12) It goes to sleep at night, allowing the dew and cool air to reach the coffee. When young the wood is soft, but on ageing it gradually gets a red heart and becomes hard and durable. The seed I send has been bathed in sulphate of copper solution, and I believe it to be good, as you can try a few seeds in Kew by way of curiosity and send the rest to one of our tropical establishments to be reported on. When full-grown this tree may be 50 feet high with a spead of at least 50 feet on all sides. Nothing can be better as a shade tree. It is a poor liver and does not exhaust the soil. It spreads out horizontally ; it gives a good shade, not too dense, and during the night allows the dew to refresh the plants beneath. The leaflets do not litter the plantation and are too small to harbour fungi and moulds. It is easily trimmed and brought to shape. The umbrella ants will attack it, but they can only get hold of one little sub-pinna at a time. They cannot get a good bite and cut out a real imposing umbrella and so they do not care to draw much on this tree when once they have balanced up working expenses and output. This is an advantage."—*Kew Bulletin*, Nov. 1895.

The Trade of the Port.—A merchant sends us the following complaint today :—" There is a serious dead-lock at the wharf, steamers delayed, warehouses blocked, no carts and coolies to be had, &c." This should stir up those responsible : holidays even may not stop Export and Import trade !

"The Agricultural Magazine" for January, 1896 has the following contents :—Grape Cultivation in Colombo ; Occasional Notes ; Rainfall at the School of Agriculture during November; Rainfall taken at the School of Agriculture during the Month of December 1895 ; The Feeding of Animals ; Notes from the Poona Farm ; The Fertility of Soils ; Ceylon Woods ; The Management of Dairy Cattle ; Ailments and Diseases of the Horse ; Astringent Barks; Prevention of Plant Diseases ; Notes on Recent Research on the Feeding of Animals ; General Items.

The Age of Trees.—According to Herr Gericke, the German forester, trees in Germany have certainly lived to the age of 570 years. Pines in Bohemia, Norway, and Sweden also live to this age. The silver fir in Bohemia lives to the age of 400 years ; the larch in Bavaria reaches 275 years. The evergreen oak of Aschaffenburg was 410 years old. A red beech at the same place was 245 years old. Ashes of 170 years, birches of 200, aspens of 220, maples of 225, elms of 130, and red alders of 145 years are also known.—*Globe*.

Frost in the Nilgiris.—" The cold weather has set in with a vengeance and frost has been common for many night's past ; but last night it visited us with unusual severity. The thermometer exposed outside my bungalow verandah registered 24° at half past 6 this morning. I have no record of what the minimum was, but I found ice a quarter of an inch thick in a tub outside my bedroom and icicles over 2 feet long were hanging from a raised sluice near the bungalow. As for my garden, the flowers have all gone. I believe it is many years since we were visited by so severe a frost."—*M. Mail*.

The Mildura Producers have apparently done well this last season. The official returns give the yield of raisins at 1,787,744 lb. ; of currants, 10,960 lb. ; apricots and peaches, 182,040 lb. ; fresh fruit generally, 640,000 lb. ; and of jams and canned fruits, at 81,288 lb. ; The almond crop is put at 6,300 lb. Although no wine appears to have been exported, the quantity made is put at 75,000 gallons. Altogether the produce raised is valued at 40,000*l*. As this is only the "beginning" of what can be done on the irrigation principle, it is clear that the Mildura cultivators may be congratulated on the progress that they have thus far achieved.—*M. Mail*.

Tea and Coffee in Southern India.—Dealing with a correspondence relative to irresponsible scribblers in the press with regard to planting matters the *Madras Mail* says :—

We have already said that there is ample room for a special planting organ in this Presidency, and it seemed as if the little fortnightly journal issued at Coonoor was to meet this want. It may still do so, but it will have to considerably modify or alter its views. In its last issue it states that it thinks the coffee industry is not permanent, and as for tea it is doomed. " The margin of profit in Upper India," it writes, "is steadily vanishing and may in a very few years disappear altogether." And this though, according to the *Economist*, the forty Northern India tea estates, registered in London, paid in 1894 an average dividend of 9 per cent., and the financial papers during the past few weeks have more than once mentioned how much greater attention English investors are paying just now to tea-shares on account of the steadiness of their returns. Never in the history of coffee cultivation in Southern India has the permanence of the industry been more fully assured than at the present, and as for tea, though there are elements of weakness in its position, yet the vigorous manner in which demand is being developed in new countries, and the rise of prices attendant on this development, are very favourable signs of its continued prosperity.

PROGRESS OF INDIAN TEA CULTIVATION.

Mr. J. E. O'Conor, Director-General of Statistics to the Government of India, has drawn up the following statement :—

The area under tea in India at the end of 1894 extended over 422,551 acres, a little less than two-thirds of this area (nearly 61 per cent.) being in the valleys of the Brahmaputra and Surma, which contain as much as 268,796 acres, 154,281 in Assam (the Brahmaputra Valley) and 114,512 in Cachar and Sylhet (the Surma Valley). In extent of cultivation Bengal comes next, though the acreage is much smaller than in either of the divisions of Assam, the area under tea being 121,121 acres, or about 29 per cent. of the whole.

The cultivation of tea is, therefore, to the extent of between 92 and 93 per cent. of the whole area, limited to the two provinces of Assam and Bengal.

The relatively small extent of the remaining acreage is divided tolerably equally between Northern and Southern India, thus :—

NORTHERN INDIA.

	Acres.
North-Western Provinces	7,652
Punjab	8,921
Total	16,573

IN SOUTHERN INDIA.

Madras	6,102
Travancore and Cochin	9,079
Total	15,181

There is besides a small area of 880 acres in Burma.

Examining the localities a little more closely, we find tea cultivation thus distributed in the different provinces:—

IN ASSAM.

	Acres.
Surma Valley :	
Cachar	59,586
Sylhet	54,926
Brahmaputra Valley :	
Sibsagar	59,925
Lakhimpur	44,477
Darrang	33,101
Nowgong	11,837
Kamruk	4,534
IN BENGAL.	
Darjiling	70,038
Jalpaiguri	43,133
Chittagong	4,501
Lohardaga and Hazaribagh	3,349
IN THE NORTH-WESTERN PROVINCES.	
Kumaun	3,140
Dehra Dun	4,512
IN THE PUNJAB.	
Kangra	8,826
SOUTHERN INDIA.	
Nilgiris	5,697
Travancore	9,022

In Burma the cultivation, which is quite trifling, is carried on in the Upper Chindwin and Katha Districts. There are a few small areas also in Goalpara and the Khasi and Jaintia hills, in the Chittagong hill tracts, in Simla, Malabar, and Cochin. Where the acreage is largest, there also is the yield of leaf to the acre the largest. It is evident that tea cultivation in India has been mainly concentrated in those places where a heavy rainfall and a humid and equable climate permit of repeated pluckings and flashings. In the valleys of the Brahmaputra and Surma the yield averages about 420 pounds to the acre, and in Bengal about 330 pounds, the yield in Jalpaiguri (the Duars) being exceptionally large. In Dehra Dun and in Travancore the yield is about the same as in Bengal, while elsewhere it is much lower. The area under tea has expanded from year to year without a pause during the decade comprised in these tables. In 1885 the area was 283,925 acres; in 1894 it had increased to 422,551 acres, the increase being in the ratio of 48·8 per cent.

The number of acres added to the tea-growing area each year was :—

	Acres.		Acres.
1886	14,294	1891	17,610
1887	14,581	1892	12,432
1888	11,525	1893	20,970
1889	9,374	1894	26,712
1890	11,126		

The average of the acreage added in the last five years was very much larger (17,770 acres) than the average increase (12,444 acres) in the four preceding years. The largest increase of all, it may be observed in passing, was in the two years 1893 and 1894, the former of these being the year in which the Mints were closed, an event which was regarded by some as the herald of disaster to the tea-planting industry.

PRODUCTION.

The quantity of tea produced has increased in the deacde in much greater ratio than the area under cultivation for, while the area has increased by less than 49 per cent, the increase in production has been over 88 per cent. Taking the area and production in 1885 as being in both cases represented by 100, the subjoined table shows the ratio of increase in each compared with that year. The figures of the actual increase of production each year over the production of the preceding year are also added :—

	Area.	Quantity produced.	Actual increase annually in lb.
1885	.. 106	100	.. ..
1886	.. 105	115	10,899,835
1887	.. 110	129	9,826,270
1888	.. 114	139	7,540,462
1889	.. 117	149	7,250,331
1890	.. 121	156	4,993,531
1891	.. 127	173	11,831,496
1892	.. 132	170	—1,873,628
1893	.. 139	184	10,253,626
1894	.. 149	188	2,465,144

In 1892 the production in Assam and Cachar declined, the decline in Cachar and Sylhet especially being so considerable as to affect the general results, though there was a large increase in Bengal and elsewhere. In 1894 there was again a decline, but a smaller one, in Cachar and Sylhet, and in Bengal there was but a small increase.

PERSONS EMPLOYED.

The number of persons employed in the tea) industry in 1894 is returned at 383,505 (permanently and 156,120 (temporarily), or altogether a little over half a million people (539,625), which would work out to about 1·28 persons to the acre. The accuracy of the figures is, however, open to question.

EXPORTS AND CONSUMPTION.

The tea produced in India is exported mainly to the United Kingdom, to the extent of about 96 per cent on the average production. The subjoined figures give approximately the quantity of tea consumed in India, the figures representing the average of the last five years :—

		lb.
Indian Tea	Produced ..	124,971,905
	Exported ..	120,439,095
	Left in India ..	4,532,810
Foreign Tea	Imported ..	6,789,337
	Re-exported ..	4,341,044
	Left in India ..	2,448,293

Thus the average consumption of all tea in India seems to be about seven million pounds, of which 4½ million are Indian and 2½ million are foreign. It may be added that Ceylon provides India with nearly a million pounds of the foreign tea imported.

This consumption comes to only 0·024lb. per hea of the population according to the census of 1891, or say one-fortieth of a pound, a quantity which contrasts strongly with a consumption in the United Kingdom of from 5¼ to 5½lb. per head. Broadly, it may be said that the Indian consumption of tea per head is exceeded by the United Kingdom more than two hundred times. Indeed, such as it is, the consumption of tea in India is to a substantial extent due to the European population, for more than one million pounds are

taken by the Commissariat for the British Army, and at least an equal quantity must be consumed by the European civil population. However, the consumption is increasing among the population of the larger towns, especially the Mahomedans; there is room for great expansion in this direction.

PRICES.

The prices of tea in Calcutta have fluctuated greatly since 1873. Taking the price in March, 1873, to be represented by 100, it appears that until 1884 the level was well above that point, varying from 110 to 148. Coincidently with the great fall in exchange and in general prices in 1885, the level fell to 90, and though in 1886 it rose to 96, a low level was maintained in the following years untill 1894. In 1895 the level rose to 97. These figures all represent the course of prices of Fine Pekoe in January of each year as given by the Bengal Chamber of Commerce.

In the Statistical Bureau the average prices of the various descriptions of tea sold at the public sales held in Calcutta during the tea season have been computed of some years past, and the results are regularly published in the review of the trade of India. From these returns of prices the figures below are takeu, being the prices per pound of the three descriptions which form the largest proportion of the tea sold:—

Season.	Broken	Pekoe.	Pekoe		Pekoe. Souchoug.	
	As.	Pie.	As.	Pie.	As.	Pie.
1889 ..	9	9	7	5	5	7
1890 ..	8	10¾	7	2	5	8¼
1891 ..	8	7½	7	0½	5	3⅓
1892 ..	11	3⅓	8	9	6	5¼
1893 ..	9	2 4-5th	7	2⅔	5	4 4-5th
1894 ..	11	8	9	4 4-5th	7	2 5-7th

PROSPECTS OF BRITISH NORTH BORNEO.

Mr. R. S. Duff Tytler writes:—"I received the enclosed, which may interest you and others seeking 'light' on Borneo." The enclosure is the following letter from Mr. Henry Walker:—

Dec. 19th.

My dear Tytler,—I have just come across your note introducing —— to me, and it just occurs to me that you would be glad to hear what he has done.

He was very pleased with all the coffee he saw in North Borneo. I happened to meet him at Labuan where I was a bit seedy and was taking a change to Sandakan so we travelled together. I advised him to go straight on to Sandakan and see the Goverror *first* before doing anything. At Sandakan he saw Pryer's coffee which is very promising and beginning to crop well—planted in 1892 (about 180 acres). That induced him to see the Governor and he got a free grant of 500 acres subject to its being planted and then he went back in the same steamer with me to Kudat, and saw my plantings, also about 180 but wo only opened 27 acres early in 1892 and gradually opened; the last 32 now being planted.

Our soil is better than the East Coast, besides we *have some* labour, not much but still it is a help. —— stayed at Toritipan our place and the adjoining 4 tobacco estates and finally took up land on the Bay to the North of Toritipan, about 2 hours by boat. I had told him he would find good soil, but he must make sure of the water and he says he has both with a big village near. I hear he has felled 70 acres partly for Liberian coffee and partly for coconuts.

I think that coffee in North Borneo is the coming K. but I should like to see Arabian coffee grown. It grows and fruits well in many villages on the West coast and no leaf disease, but we shall get leaf disease so I do not lay any particular stress on that. My belief is we always had it in Ceylon.

Our hills begin at the sea-side and continue for 180 miles 7,000, 8,000, 14,000 feet high in the interior, behind the coast range, there are open plains and a lovely climate. I asked the Government in 1892 to make a road through the hills and pointed out a gorge which I thought would do, but the "powers" were against it and when it was said my road scheme was impossible they said 'we thought so.' However in 1894 a change was made in the Directorate and Roads were wanted. My letters were found and I got orders to make the Roads, and I have done 20 miles since March and shall finisd 35 miles, I hope, in the 12 months—Bridle track.

The gorge slips in between hills of 3,400 feet up to a plain at 600 feet which rises steadily and extends North and South for 20 and 15 miles, Hills all round—and bad soil. Tho rainfall resembles Uva, about 70 in. well divided, and since March I have seeu the sun every day. A fruit country and the jungle is full of wonderful blossoms, each in its season. I believe, it is a grand coffee country. This is the centre of our chief population. And there is any amount of yams. The directors now propose to ruu a railway up the gorge and if they do it will make this country go-ahead.

I was in Sandakan two months and then returned here so that I have had a lot of rough work this year, and I shall be glad to get back to Sandakan.

I hope to go to England in March or April and I should like to see tho Ceylon men on my way. They ought to come here. We have our troubles but they can be overcome, only we want men with money—it's no use coming hero for a job. My road will bo a capital means of prospecting from sea-level gradually up through hilly land and valleys until the hills are 3,400 feet which in point of temp. means 1,000 feet moro than in Ceylon.—With kiud regards, yours sincerely,

HENRY WALKER.

BORNEO CHIT-CHAT.

Jan. 16th.

OIL MOTOR LAUNCHES for passenger and goods traffic in the bays and rivers of North Borneo are advocated by the *North Borneo Herald* of December. The amount of petroleum required is exceedingly small, a pint keeping the engine going for a considerable time.

GOOD BILIAN TIMBER LAND has been found on the east coast in a locality hitherto untouched. Coals are now being exported from Labuan weekly to the value of $11,000.

A NEW COFFEE COMPANY (Sandakan Coffee Estate Company, Limited) has been registered and incorporated in London, £25,000.

TOBACCO.—North Borneo tobacco has been sold in Holland in 1894 valne $588,000, average price 37½ Am. cents per Am. lb. Sumatra tobacco has been sold in Holland in 1894 value $14,000,000, average price 43½ Am. cents per am. lb.—*Cor.*

TEA LAND IN SOUTHERN INDIA.

We learn that Mr. W. S. Shaw, senior partner of Messrs. Parry & Co. of Madras, and President of the Board of Directors of the Bank of Madras, will arrive in Colombo per ss. "Goorkha" on the 23rd inst. Mr. Shaw's firm are at present offering suitable blocks of land in the Wynaad for tea *vide* (advertisement). The demand for the land, we hear, is very keen, and intending purchasers should make up their minds at once.

TEA IN AMERICA.

New York, Dec. 18th.

The pressure to sell Greens has stopped and the result is a steady market for Pingsueys. High grade Formosas are in light supply and firm, with low grades steady and buyers holding off, believing they must go lower. Japans unchanged. The general market is quiet and dull; the only activity is on the

part of the agents of the Ceylon and India tea planters, whose pluck, perseverance and aggressiveness command admiration. They are advertising liberally, and have succeeded in getting their teas into scores of the best stores—in short, they are making progress. The campaign never looked as well nor promised such good results as at present, and this is due in a large measure to the industry, intelligence and admirable way in which the representatives of the Indian and Ceylon tea interests have worked. Today at noon the Montgomery Auction and Commission Company will sell 3,820 packages, viz.: 647 half-chests Moyune, new season's including the "Qui Hong" Chop; 1,563 boxes Pingsuey, new crop; 157 half-chests Japan, new crop including fancy assorted 1-lb baskets; 154 half-chests Japan, baskets-fired and sun-dried, including fancy assorted 1-lb baskets; 305 half-chests and boxes Congou, new crop; 48 boxes Capers, new crop; 144 packages India, Java Pekoe and Ceylon; 19 half-chests and boxes Amoy; 483 half-chests Foochow; 300 half-chests and boxes Formosa, new season's.—*American Grocer.*

DRUG REPORT.

(From the *Chemist and Druggist.*)

London, December 24th.

There is very little news in the drug and chemical markets since our last report, business transactions being practically at an end for the remainder of the year

Essential oils remain steady, at 10s to 10s 3d for staranise, 1s 11d to 2s nominally for citronella, and 2⅜d to 2½d per oz for lemongrass oil.

Good East Indian annatto-seed has lately been sold privately in small quantities at 6d per lb.

In spices scarcely any business is passing. Zanzibar cloves remain fairly steady, with sellers for January-March delivery at 2 1-32nd d. per lb

MISTLETOE AND MISTLE THRUSH.

The mysteries which have gathered round the mistletoe plant, the *Viscum album* of botanists, have struck their roots deep in the romance of of folk-lore, in the evolution of cults and superstitious ceremonial, far beyond even the deep woodland ritual of the Druid priest. Even the most learned of philogists of the present day are not agreed as to the origin of the word. It fills, too, no inconsiderable space in realms of poetry. Our great Elizabethan dramatists have employed it and its imaginary properties and parasitical ways to point their morals. Under its boughs, at the merry Christmastide, many a life's romance, many human comedies and even tragedies, have received their first meaningless or passionate note of inspiration. In this article we must not be tempted, beyond this casual allusion, into a consideration of the mistletoe in any of these fascinating fields of speculation. Our purpose is to point out certain purely scientific phenomena in connection with the plant and the mistle thrush (*Turdus viscivorus*) about which much controversy has been waged, and in connection with which considerable ignorance still prevails, even among botanists and ornithologists. For instance, in one of the standard German works on sylviculture ("The Waldschü tz of Kauschinger," by Hermann Fürst), the statement is made that the mistletoe plant "probably" owes its wide extension and reproduction to thrushes, which eagerly consume its berries, and "in cleansing their beaks from the sticky flesh of the fruit, leave a portion of it on the bark of the tree along with some of the seeds contained in it." That is not so, as we shall show, and the elements of science and romance are interwoven with this very theory of seed propaganda and of specific *modus operandi.* Curiously enough, the ancient theory which found favour with Aristotle, Pliny, Ælian, Phile, and others, and which the poets followed blindly and enlarged upon in metaphor form, was rudely assailed by Lord Bacon in his "Sylva Sylvarum" (1635), and even more vigorously ridiculed by the very sceptical Sir Thomas Browne in his "Pseudoxia Epidemica" (1672), but is now established as true beyond the shadow of a doubt. The truth has been revealed by the labours of field naturalists and observant botanists working on the very inductive lines of reasoning that Lord Bacon is popularly credited with having "founded," and which undoubtedly were successfully employed by Sir Thomas Browne in exposing many "Vulgar Errors." Lord Bacon ventures upon reasons for discarding the ancient theory, which are altogether fallacious. The passage will be found on pages 139 to 142 of the edition referred to, the old spelling and punctuation and use of capital letters being followed.

"We finde no Super-plant that is a Formed Plant, but Misseltoe. They have an idle Tradition, that there is a Bird, called a Missel-Bird, that feedeth upon a Seed, which many times shee cannot digest, and so expeleth the whole with her Excrement which falling upon a Bough of a Tree, that hath some Rift, putteh forth the Misseltoe. But this is a Fable: For it is not probable, that Birds should feed upon that they cannot digest. But allow that yet it cannot be for other Reasons: For First it is found upon certaine Trees: And those Trees beare no such Fruit, as may allure that Bird to sit, and feed upon them. It may be that Bird feedeth upon the Misseltoe-Berries, and so is often found there: Which may have given occasion to the Tale, But that which maketh an End of the Question, is, that Misseltoe hath beene found to put forth under the Boughes, and not [onely] above the Boughes: So it cannot be any Thing that falleth upon the Bough. Misseltoe groweth chiefly upon Crab-Trees, Apple-Trees, sometimes upon Hasles; And rarely upon Oakes; the Misseltoe whereof is counted verie Medicinall. It is ever greene, Winter and Summer; And beareth a White Glistering Berry: And it is a Plant, utterly differing from the Plant, upon which it groweth. Two things therefore may be certainly set down. First that Super-fetation must be by Abundance of Sap, in Bough that putteth it forth: Secondly, that that Sap must be such, as the Tree doth excerne, and cannot assimilate. For else it would goe into a Bough; And besides, it seemeth to be more Fat and Unctuous, than the Ordinary Sap of the Tree, both by the Berry which is Clammie; And by that it continueth greene, Winter and Summer which the Tree doth not."......

The theories of Dr. Prior, Bosworth, and others who traced the word to the old English mistiltan, "from 'mistal,' different, and 'tan,' a twig, being so unlike the tree it grows on," must be abandoned. It is possibly derived from the Scandinavian "mist," meaning dirt, or obscurity. But be that as it may, we have endeavoured to show that in the realm of pure science there are associations of mystery and romance quite as interesting as the associate ideas of Druidic ceremonial and cult, and almost as fasinating as the legendary significance kissing under the mistletoe, with all its far-reaching or, it may be, quite ephemeral consequences. Then the bird itself has been the object of much study and an infinity of "fine writing." The habits are now well known, and have been frequently described. To our mind, its piercing, but sweet, strain

of music, poured forth in the pauses of a wild February or March storm, possess the additional charm of mystery because, like the music of the robin or the wren, we cannot reconcile such voluntary bursts with the theory of sexual rivalry as the origin of avian song.—*Graham W. Murdoch*, in *Knowledge.*

INDIGESTIBILITY OF FRUIT SKINS OR RINDS.

That the rind or "skin" of all fruit is more or less indigestible is a fact that should not be forgotten. We say *all* fruit, and the statement must be understood to include the pellicle of kernels and nuts of all kinds. The edible part of fruit is peculiarly delicate and liable to rapid decomposition if exposed to the atmosphere; it is therefore a wise provision of Nature to place a strong and impervious coating over it as a protection against accident, and to prevent insect enemies from destroying the seed within.

The skin of plums is wonderfully strong compared with its thickness, and resists the action of water and many solvents in a remarkable manner. If not thoroughly masticated before taken into the stomach this skin is rarely, if ever, dissolved by the gastric juice. In some cases pieces of it adhere to the coats of the stomach, as wet paper clings to bodies, causing more or less disturbance or inconvenience. Raisins and dried currants are particularly troublesome in this way, and, if not chopped up before cooking, should be thoroughly chewed before swallowing. If a dried currant passes into the stomach whole it is never digested at all.

In the feeding of domestic animals this fact should be kept in mind. If grain and leguminous seeds are not crushed or ground, much of the food is often swallowed whole, and the husk or pellicle resists the solvents of the stomach, causing a considerable loss of nutrition. Thus every horsekeeper should posses a corn-crushing machine for feeding purposes. Birds, being destitute of teeth, are provided with a special apparatus for grinding their seed, namely, the gizzard. The indigestibility of certain nuts is partially due to the brown skins. Blanched almonds on this account are more digestible than those which have not been so treated.—*Market Gardener*, Dec. 4.

CENTRAL TRAVANCORE PLANTERS' ASSOCIATION.

The annual general meeting of this Association we see from the *Madras Mail* was held on the 4th Jan. The Hon. Sec. read the Annual Report, in the course of which he said :—

I myself, though I have taken some pains to make enquiries, have never met a planter of any experience who has not looked on advances as a matter of absolute necessity, and I am therefore led to believe that the assertions as to their inutility emanated from the younger portion of our community.

Another step forward this year was the re-institution after a lapse of nearly twenty years of public sales of waste lands, and it is much to be hoped that these will be continued there being unbounded room in Travancore for the expansion of the tea and coffee industries.

With unanimous consent Messrs. J. Grieve & Co. were appointed sole agents for the Association. These gentlemen have done much in exposing local traders making use of fraudulent marks and selling thereunder spurious teas purporting to be the produce of this District. I trust that the arrangements now made will go far to check this trade.

INDIAN AMERICAN TEA FUND.—Members are to be most heartily congratulated on their response to the appeal made to them for this Fund. Every estate and almost every Superintendent subscribed, and the Association, which remitted the very substantial sum of R1,500, has again received the special thanks of the Indian Tea Association. The past year has seen an average decline of fully 1d, per lb. in the tea market, and I would warn members that a recovery in the coming season is unlikely. The estimates for the year have not yet appeared, but there can be little doubt that, given favourable weather, there will be an increased yield both from India and Ceylon. For this annually increasing production an outlet must be found Mr. Blechynden, our representative is doing admirable work for us in America and his efforts are beginning to bear fruit, but to continue the campaign the sinews of war must be forthcoming, and I would therefore urge members by every means in their power to respond as liberally in the present season to the appeal that is certain to be made for funds as they have done in the past. It is practically a Life Insurance Fund, for on the success of the American campaign in a large measure depends our own prosperity, and, after all, the sum asked for from each individual estate is infinitesimal as compared with the interests at stake. It is satisfactory to note that coffee cultivation is again springing up in the District, and this too with every prospect of success. I heartily congratulate the enterprising gentlemen, who have extended their operations in this direction.

The result of the ballot for office-bearers was as follows :—Chairman.—Mr. F. M. Parker.—Committee.—Messrs. S. M. Dighton, R. H. Goldie and R. S. Imray, Honorary Secretary.—Mr. G. L. Acworth.

Proposed by Mr. Imray seconded by Mr. Goldie :—"That this Asssociation endorses the Resolution passed by the Wynaad Planters' Association and considers some form of advance as necessary to the existence of our industry." Carried *nem. con.*

THE INSURANCE ON TEA FACTORIES.—The Honorary Secretary drew the attention of the meeting to the fact that the principal Insurance Companies in London had raised the rates of premium in South India to what he himself could not but think an unjustifiable extent, a well equipped factory now costing some Re. 1-4 to Re 1-6 per cent. per annum.

There was considerable discussion on the subject, which, on the motion of Mr. Imray, it was eventually agreed to refer to the Committee, who should have full power of action.

BLACKSTONE ESTATE COMPANY, LIMITED.

STATUTORY MEETING.

The statutory general meeting of the Blackstone Estate Company, Limited, was held on Jan. 18th at No. 21 Baillie Street—the offices of Messrs. Carson & Co., Agents and Secretaries. Mr. J. N. Campbell presided, and the others present were Messrs. G. J. Jameson, H. Creasy, J. Guthrie and E. R. Waldock.

The SECRETARY having read the notice convening the meeting,

The CHAIRMAN said the Company was incorporated on the 25th of January 1895, and therefore it was necessary to call a general meeting within twelve months from that time. He explained that the present meeting was simply to re-elect Directors. The three Directors who retired, he stated, were eligible for reelection and offered themselves for such.

Mr. J. GUTHRIE moved, and Mr. E. R. WALDOCK seconded that Messrs. J. N. Campbell, H. Creasy and G. J. Jameson be re-elected Directors for the present year.—Carried *nem. con.*

The CHAIRMAN said that there was no more business before that meeting, which was to be adjourned to lay the accounts before the shareholders, notice of such adjournment being given to the shareholders, whereupon

Mr. G. J. JAMESON proposed and Mr. J. GUTHRIE seconded that the meeting be adjourned to the 8th prox.—Carried *nem. con.*

The meeting closed with a vote of thanks the Chair proposed by Mr. J. Guthrie.

WEEDS.

A remarkable illustration of the ill-results that may and do attend the introduction and spread of weeds has been recently afforded. Australia seems to be more troubled by these and animal pests than any other country we have heard mentioned in such a connection. Simultaneously with a renewed outcry for the more systematic destruction of rabbits, we hear of a strong agitation proceeding for the adoption of measures calculated to keep down certain weeds, the growth of which is stated to have so extended as to seriously threaten the prosperity of the most important branch of Australian production, namely wool. It appears that a great falling-off in prices obtained for this at home of late has been due to the quantity of seeds of certain weeds contained in the fleeces. This reduction has amounted to something like twopence per pound, as very considerable cost has to be incurred to free the wool from these seeds before it can be submitted to treatment. Although our productions in this colony are not likely to suffer in the same manner as this, we think the lesson should not be lost sight of by our planters. For, once allow weeds to gain head, and it is impossible to foresee what the result may be. Many of us recollect the time when that imported plant, the lantana, spread in most baneful luxuriance over the whole face of our coffee estates. The experience gained from the effect of that scourge has not been without its benefits, and it is the rule that our present generation of the planters are careful to eradicate all similarly useless and possibly pestilential growths. But immunity from direct consequences, when long-continued, often tends to engender carelessness and laxity. It is as well, therefore, that the lesson afforded by this newest Australian experience should be emphasized. The evil in Australia we believe to be comparatively one wholly unanticipated. The sheep farmers there have been mainly occupied by endeavours to combat the rabbit plague—endeavours that would seem by the light of very recent complaints to have been far from entirely successful. But, quite unsuspected, an evil, almost if not quite as great as that of the animal pest, has been progressing upon their pasturage grounds, until the result has shown itself in a very material loss upon the staple production. What has thus been insidiously working to the detriment of the Australian sheep farmer may be as insidiously working among ourselves unless all and everyone of our estates are kept scrupulously free from weed growth. For the presence of a single estate in a district upon which negligence in this respect is permitted may infect, so to speak, the whole of the area of that district. The forces of nature are ever working around us, and in no case with greater insidiousness or rapidity than in the instance of waste and valueless growths. If the effect of that carticular force is to be met and overcome, it tan only be by unanimous effort and unremitting watchfulness and care. Had these qualities been operating in the case of the Australian sheep-runs, their proprietors would not now be face to face with a loss that may mean ruin to many of them.

THE HAPUGAHALANDE TEA COMPANY.

DECLARATION OF DIVIDEND.

The Directors of the Hapugahalande Tea Co. have declared an interim dividend of 10 per cent for the current season 1895-96.

MORE WRINKLES FROM AN OLD COCONUT PLANTER.

HOW TO CLEAR AN ESTATE OF PORCUPINES AND PIGS.

Begin by digging a trench 18 inches deep, 12 feet long and 2½ feet wide at the opening, but the sides must gradually converge to a very narrow slit. Feed the porcupines well a little way off from the trench and induce to come and eat again and again. They are fond of green pineapples and cacunut oil seeds; these grow plentifully in and about Kandy and indeed the oil, extracted from the seeds is what natives usually use for their lamps. Gradually begin scattering food close around and then *in* the trench, but be careful not to tramp the soil or the wary creatures will not come near; bring the food nearer and then after the middle has been reached, put the food quite up at the end, they will eagerly wedge themselves in forward and others follow behind, but when they wish to turn and get away they find themselves fixed and fairly caught, their quills being their worts enemies.

Sometimes porcupines live in armadillo holes or caves and must be caught by another means. In this case, arm yourself with a long pole or stick to the end of which three dynamites are tied with a long fuse. Insert it into the cave as far as it will go and set a light to it.

Another way of getting rid of these destructive creatures is to drill small holes into 50 or 60 coconuts and put a little arsenic into each hole; sprinkle these about their feeding places, and there will be dead porcupines lying about everywhere.

PIGS.—Get ½ cwt. of poonae put in three different tubs 40 or 50 fathoms apart forming a triangle. Refill these each day and gradually place them nearer. When the pigs are accustomed to feeding there, concentrate all in one tub and mix a good dose of arsenic with the food—and the pigs will be found next morning lying about never more to rise.

FOWLS.—Are you troubled with sickness among the fowls? Try the following: 1 measure boiled rice, ½ m. bazaar salt, ¼ m. chalk, ¼ m. anthill clay; put all into a mortar and pound and make into a ball which keep in your fowl house. Also give the fowls iron water to drink, that is put some rusted iron into their water chatty.

A CEYLON PLANTER IN AMERICA.

Mr. A.E. Scovell, Strathellie, Nawalapitiya, has just returned to Ceylon after an extended period of leave. Mr. Scovell, has travelled round the world and those who know him will readily understand that what he did'nt see and mentally digest in the places he visited was'nt worth seeing! He left on 22nd November last, but before setting out on his journey to New York he was fortunate enough to meet Mr. Wm. M'Kenzie, our Commissioner, who was good enough to give him introductions to the principal tea men in America and especially to Mr. Blechynden, the Indian Tea Commissioner, and to Mr Robertson, who is acting Agent for the North and South Sylhet Companies, a gentleman who handles over one million lb. of tea per annum. Mr. Scovell is well satisfied with the tea propaganda in America. With regard to the food show at Philadelphia, Mr Scovell thinks it a thousand pities that Ceylon was not officially represented, and he corrobrates Mr Bierach's letters regarding the success of his show. It is gratifying to think

that Ceylon has a charmed sound in the ears of our, at present, bellicose cousins, Ceylon tea. Mr Scovell stating as the result of his experience, being much oftener spoken of than Indian tea. The feeling that the Chicago big show had not commensurate results was, he thinks, due to the hope of reaping too soon what was sown. Very often in America he had Yankees say to him "Ah! I remember the tea I had at Chicago." Canada, he thinks, will prove a better outlet than the States. In San Fransisco where they go in for afternoon teas "same as the English do," there is a growing demand. The fruit-growing district in Calefornia was visited by Mr. Scovell. Oranges and lemons seemed to pay and for ther cultivation land was in demand in the Lake Tulare district. Prunes, apricots and other kinds of fruits were less profitable; and from the fact that gardens could be acquired at seven years' purchase, there did not seem to be much confidence in their future. From San Fransisco, Mr. Scovell went on to Yokohama after a twenty days passage, protracted three days' beyond its normal extent by heavy weather. He visited the tea plantations at Uji, where is grown the most highly flavoured tea in Japan at the best a poor article, China tea of the worst jat. The methods of cultivation are the most primitive, and as far as tea-making is concerned, charcoal stoves and hand-rolling and sorting are resorted to. At Yokohama he saw in operation the "faking" process for giving the leaf that appearance which American *connoisseurs* delight in. Space forbids us publishing more of the information gathered by Mr Scovell in the course of his tour. We welcome him back to Ceylon!

SUGAR-CANE CULTIVATION.

Our Galle correspondent writes:—I think there is a great deal to be said in favor of Mr James Dixon's contention that Sugar-cane can be successfully cultivated in the lowcountry. Of late years several Sinhalese land-owners in Gangaboda Pattu have gone in for this cultivation and have established mills for sugar manufacture. E. A. Jayasinha Mudaliyar has 120 acres fully planted at Nagoda with a factory and all modern appliances for sugar refining. His sugars are well-known in the markets. In addition to this and Messrs. Winter's estates there are a good many gardens with mills, whose proprietors appear to do a thriving business. When Sir Arthur Havelock visited Baddegama the return trip was made in the Nagoda Mudaliyar's boat to Wakwella; and His Excellency was much pleaced to view the large acreage under cane cultivation. Mr. Dixon's interesting letter is deserving of attention on the part of agriculturists and others seeking new investments for their capital.

PLANTING AND PRODUCE.

TEA PACKING IN TIN PLATE.—The controversy on this subject is carried on with considerable vigour in Swansea, and the local and trade papers discuss the subject. A grocer in Swansea raises an objection to the packing of tea in tin plates. "It will never do," says he. "You know that hay when stacked often causes sufficient heat to cause a blaze. Well, unless some outlet for the damp contained in tea is provided it will all go wrong. Of course the air cannot get to it to give it sufficient oxygen for a fire, but the result with air-tight tin boxes will be that the tea will get heated, then mildewed, and spoilt. Under the present arrangement the lead foil lining of the wooden boxes, not being hermetically sealed, allows the hot air to get away through the wood, and the tea arrives here quite sound and wholesome. It is my firm belief that it would not do so were it to be packed in sealed tin boxes. Then, again, there is an extensive lead industry in China, and the people there will be sure to protest against the discontinuance of the use of lead foil." In an interview which a Llanelly correspondent has had with Mr. Frank Randell in reference to the question of tea packing in tin plate, and the objection thus raised, that gentleman said that if experts decided against the box being hermetically sealed the chests could be so made as to provide the required ventilation. The objection was no objection at all. As to China protesting against the change in the interests of the Chinese lead industry, he admitted that China would not come within the scope of the change until the advantages of the new packing had been made abundantly manifest. As to the suitability of the packing, this was conclusively proved by the enormously increased demand for metal chests for tea packing. In point of fact the tea even in the inside lead cases of the chests now chiefly in vogue was hermetically sealed up; but, for himself, he held an open mind. The objection raised, however, was completely answered by the fact that the tin plate chest could be easily ventilated as a wooden box. In the whole of his experience he had not found that the tea grew mildewed through the box having been hermetically sealed. In his opinion such conditions of packing were a safe guarantee against mildew. It was an admitted fact that the 2 per cent of the metal chests in which tea was now brought over was approved of by the planters and traders, and there was no reason why, in the interest of the South Wales tin plate trade, they should not endeavour to capture the remaining 98 per cent. An official of the Government Railways in Ceylon waited upon Mr. W. H. Ludford, the district manager of the Great Western Railway, at Llanelly a day or two ago, and asked to be supplied with full particulars of the new method of tea packing. He is reported to have said that as the industry of tea planting was so rapidly growing in Ceylon, the matter of adopting new methods of packing was of first importance, especially in view of the fact that the present wooden boxes were open to so grave an objection through being smashed in transit. He considered therefore that there was a great future for metal chests.

COFFEE IN MEXICO.—According to Mr. J. L. Pernet, of Orizaba, a well-known authority on coffee estimates, Mexico's crop this year will be only 300,000 centals, or fully 50,000 centals less than last year. The shortage is said to be due to the severity of last winter, to the lateness of the rainy season, and to the over-crowding of trees. It is still asserted, however, that, with little more experience, coffee planters in Mexico will become serious competitors with Brazil.—*H. and C. Mail*, Jan. 3.

THE TEA DUTY IN AUSTRALIA.

Referring to the discursive debates on the new tariff in the assembly at Victoria and the resolution to retain the duty on tea, the *Sydney Herald* contrasts the policy of the Victorians on this matter as compared with New South Wales. It says: "During the debates in the Assembly a motion had been tabled for reducing the duty from 3d per lb as at present, to 25 per cent ad valorem, the intention being to reduce the cost to the consumer of low qualities of tea. The proposer withdrew his motion when it was reached, but another member was ready to champion a more drastic reduction still, and invited the committee to include tea amongst the articles altogether exempted from payment of duty. He based his proposition upon the too familiar claim of 'a free breakfast table,' and Mr. Best, in replying for the Ministry, admitted that he had some sympathy with the policy of reducing the taxation upon an article in such general use. But the state of the finances did not encourage him at present to surrender a revenue of about £100,000 yearly. Should the public accounts present a favourable aspect later in the financial year, he might be willing to consider how a reduction could be made, but he asked the House to reflect on what the effect would be in England

if it were announced that so great an item of revenue was given up while the surplus was so small. The debate was postponed, and when the discussion was resumed nothing substantial was added, but the House decisively rejected not only tho proposal for completely freeing tea from a duty, but also several suggested reductions of the existing duty.

"It is interesting to contrast this action with what has takon place in New South Wales. When early in 1892, the Customs Duties Bill of the Dibbs Government was submitted to the Legislativo Assembly, the second clause contained a provision for wholly removing the duty then charged on tea, 3d per lb. Apparently, nothing but antipathy to anything like a purely revenue-producing duty animated the Ministry in this proposal. In England the duty is 4d, and even the staunchest free-traders approve of the tax. In the nature of the case it can have no protectionist incidonce, and it produces a large return in taxation without being unjust or burdensome. At the time when the ad-valorem proposal was adding 10 per cent to the cost of every imported article say only those subject to higher specific duties, the protectionist Government remitted a Customs charge which had been in force for many years, had caused no dissatisfaction, and had given the Treasury an average return of £100,000 a year, and at the time Mr. See remitted it was yielding £125,000. The Treasurer had nothing more to say about the remission than that it would benefit the working-man, and might be set off against the new duties on agricultural produce. In such a light frame of mind did the Gibbs Government surrender revenue. The majority which that Administration had managed to get together was equally ready to remit a taxation which was hardly felt and to impose other duties which have been complained of ever since. Thus the tea duty disappeared. The Treasury lost a source of steady revenue which not even the English tariff seeks to dispense with. The loss was an argument the more for the mischievous ad-valorem duties. Tho consumer was not benefited, for it is not found that the public at once and wholly reaped the benefit of the remission of duty The import trade was stimulated, and a salutary check upon the introduction of inferior teas was removed, with the result that we are frequently hearing complaints that the refuse of other colonies finds a safe market in Sydney, and at the present time we have the City Health Officer condemning perished teas sought to be landed and vended here. In such ways this community has to pay for the reckless policy of Sir George Dibbs and his Treasurer. The Victorian authorities are wiser. They know that to remit a tax is easier than to reimpose it—that it is impolitic to surrender a duty which is easy to collect and which the public hardly feels, and especially impolitic when in the nature of the case other taxation must recoup the Treasury, and that in the interests of the community a small Customs duty is benefical as serving the purpose of a check upon 'lie tea.'

"There hardly is available to a Treasurer another article of consumption which if so fitted according to the canons of taxation to bear a duty as tea. It is nearly universal in consumption; therefore almost every person in the community bears the burden in proportion to his use of the commodity. Consequently also, a small tax is immediately and steadily productive. The article in itself is not, like alcohol, an object of conscientious scruples, nor, in spite of the opinion of doctors that the Australians drink too much tea, is it believed that tho taxation raised in this way represents an evil done to the moral welfare of the people. Next, in practice the duty incidentally checks the importation of the inferior qualities of tea by loading them with a Customs charge which is heavy in proportion to their low intrinsic value. A further advantage is that tho duty is as easy of collection as it is lightly felt by the consumer. Having no protective incidence, it does not interfero with industry, and does not coddle a parasitic local interest at the expense of the community. The article is wholly imported, and from one or two places; therefore the collection of Customs is facilitated, and the bulk and specific value are deterrents to smuggling. It is in all these points of view an ideal subject for taxation, and it becomes clear that the duty never ought to have been sacrificed; or, having been given up, ought to havo been reimposed by some wiser administration."—*H. and C. Mail*, Jan. 3.

COFFEE CULTIVATION IN INDIA.

Mr. J. E. O'Conor, Director-General of Statistics to the Government of India, has drawn up the following statement:—

At the end of 1894 there wero 289,080 acres of land under coffee in India, all of it, with the exception of 10,746 acres in Burma, being in Southern India. The cultivation of coffee is in fact restricted for the most part to a limited zone in Mysore, Coorg, and the Madras Districts of Malabar and the Nilgiris. In Mysore there are 136,052 acres, in Coorg 71,181 acres, and in the Nilgiris and Malabar 45,652. If to these are added 6,587 acres in Travancore and Cochin, we find about 90 per cent of the coffee-bearing area of India concentrated in the hilly region above the south-western coast where the rainfall is heavy and the climate generally approximates to that of the coffee-bearing area of Ceylon In the Madras Presidency coffee is not grown to any extent except in the two districts already mentioned and in Salem and Madura. The only other province in which coffee is grown is Burma, mostly in Toungoo, and the industry there is of recent origin. In the decade under review the area in the Madras Districts has fluctuated, remaining in 1894 at but little above the level of 1895. In Coorg there has been a sudden and large increase in 1894, in Mysore there has been a steady and considerable increase, while in Travancore and Cochin there has been no advance: in Travancore indeed many coffee-growers have abandoned that industry for the less precarious cultivation of tea. The yield has fluctuated greatly; in 1894 it was about 35¼ million pounds, which was but little larger than in 1885, notwithstanding the increased acreage. Taking the figure 100 to represent both area and production in 1885, the ratio of yearly increase or decrease is shown in the subjoined table:—

	Area.	Production.		Area.	Production.
1885	.. 100	100	1890	.. 114	63
1886	.. 97	90	1891	.. 111	113
1887	.. 103	109	1892	.. 110	97
1888	.. 104	76	1893	.. 116	118
1889	.. 110	85	1894	.. 122	101

In 1894 the yield varied enormously in the different localities, tho returns giving 472 lb. an acre in Toung o; 354 lb. in the Nilgiris; 157 lb. in Mysoro; 104 lb. in Coorg; 76 lb. in Malabar. A noticeable feature in the returns is the record of a yield of 1,511 lb. an acre in Cochin in 1893 followed by a yield of 175 lb. in 1894. The brief explanation given by the local authorities is "that it appears that the crop in the previous year was good, and that a good crop is almost invariably followed by a poor one." It is not explained, however, why in Cochin in 1893 the yield should have been as large as 15,111lb to the acre when in the adjacent region of Travancore in the same year the yield was only 170lb and in Malabar only 70lb. Thore would seem to be defects in the statistics, to which the attention of the local authorities might with advantage be directed.

According to the returns thero were, in 1894, 37,903 persons permanently and 118,014 temporarily employed on the coffee estates, making a total of 155,917 persons, which is equal to about one person (1·07) to two acres, while in tea estates the average is over 2½ persons to two acres. The differenco is explained by the much greater labour required in the repeated plucking of tea and in the subsequent processes of preparing the leaf for tho market.

The following figures are the average of the five years ending 1894-95:—

			lb.
Indian Coffee	..	Production ..	34,444,087
Do.	..	Exports ..	31,595,514
Do.	..	*Left in India* ..	2,848,573
Foreign Coffee	..	Imports ..	1,820,426
Do.	..	Re-exports ..	585,245
Do.	..	*Left in India* ..	1,235,181

It appears therefore that nearly 92 per cent of the production is exported, and that of the coffee consumed in India foreign coffee represents less than half the quantity of Indian coffee. The rate of consumption is little more than half that of tea, amounting to only 0·014 lb. per head of the population. It is said to be rather freely drunk by the native population in Southern India, but that is certainly not so in Nothern India.

There is no trustworthy or complete record of the prices in India of Indian coffee ; and in answer to euquiries I am informed that there are no materials for the preparation of a record of prices, and that the prices in fact depend upon and follow the fluctuations of prices in London of Ceylon plantation coffee, the price on Indian coffee being about 5s less than the price of Ceylon coffee. This being so, the prices in London, in February of each year of the last twenty years of Ceylon coffee (plantation) are here subjoined:—

	Per cwt. s.	d.		Per cwt. s.	d.
1876	.. 89	0	1886	.. 56	0
1877	.. 85	3	1887	.. 77	0
1878	.. 80	0	1888	.. 72	0
1879	.. 64	0	1889	.. 90	0
1880	.. 68	6	1890	.. 99	0
1881	.. 59	0	1891	.. 104	6
1882	.. 64	0	1892	.. 105	0
1883	.. 74	0	1893	.. 108	0
1884	.. 69	0	1894	.. 100	0
1885	.. 54	6	1895	.. 104	0

Ten years, from 1879 to 1888, of depressed prices, combined with the havoc wrought by the borer and the leaf disease, greatly discouraged coffee planting in India and Ceylon, and the prospects of the industry seemed so forlorn that both in Ceylon and India much coffee land was placed under tea. In 1889, however, there was a sharp rise in prices, and the level has ranged high since that year under the operation of speculative corners, political troubles in Brazil whence the main supplies of tho world are derived, and other circumstances. The maintenance of prices at their present comparatively high level has given to the Indian coffee planter a stimulus and an encouragement which were greatly needed.—*M. Mail*, Jan. 16.

DINING FROM BOUQUETS.

Although it is well known that many kinds of flowers are used in medicine, the fact may not be known to many that the blossoms of certain plants are employed as articles of food. In many parts of India the flowers of a sapotaceous tree (*Bassia latifolia* or *mahwah*) form a really important article of food. These blossoms, which are succulent and very numerous, fall at night in largo quantities from the tree, and are gathered early in the morning and eaten raw. They have a sweet but sickly taste and odor. They are likewise dried in the sun and sold in the bazaars. The Bheels dry them and store them as a staple article of food, and so important are they considered for this purpose that when in expeditions for the punishment or subjection of these tribes, when unruly, a threat is made by the invading force to cut down their Bassia trees, the menace most commonly insures their submission. An ardent spirit like whiskey is distilled from these flowers, and is consumed in large quantities by the natives of Guzerat, etc. The Parsees and hill people eat the flowers both raw and cooked, and often with the addition of grain, and also make sweetmeats of them. A single tree will afford from two to four hundred pounds of the flowers.

The blossoms of another species (*B. longifolia*) are employed in a similar manner by the natives of Malabar and Mysore, whore it abounds. They are either dried and roasted and then eaten, or are bruised and boiled to a jelly and made into small balls, which are sold or exchanged for fish, rice and various sorts of small grain. The flowers of the Judas tree (*Cercis Siliquastrum*) of Europe have an agreeable acid taste, and are sometimes mixed with salads or made into fritters with batter, and the flower buds are pickled in vinegar. The flowers of the American species (*C. Canadensis*), the red bud, are used by the French Canadians in salads and pickles. The flowers of the *Abutilon esculentum* (*bençao de deos*) are used in Brazil as a boiled vegetable. The flowers of *Moringa pterygosperme* (the horse-radish tree) are eaten by the natvies of India in their curries.

The large and showy flowers of *Tropœolum majus* (the Indian cress or nasturtium) are frequently used along with the young leaves as a salad. They have a warm taste, not unlike that of the common cress, and it is from the circumstance that the plant has obtained the name of nasturtium. The young calices of *Dillenia scabrella* and *D. speciosa*, which aro swollen and fleshy, have a pleasantly acid taste, and are used by the inhabitants of Chittagong and Bengal in their curries and also for making jelly.

The flowers of *Rhododendron arboreum* are eaten by the hill people of India, and are made into a jelly by the European visitors. Yet poisonous properties are usually ascribed to the species of this genus, and it has been said that the *R. Ponticum* was the plant from whose flowers the bees of Pontus collected the honey that produced the extraordinary symptoms of poisoning described as having attacked the Greek soldiers in the famous retreat of the ten thousand. The flower buds of *Zygophyllum Fabago* are used as a substitute for capers, and the flowers of *Melianthus major*, a plant of the same order, are so full of honey that the natives of Good Hope, where the plant grows wild, obtain it for food by shaking the branches, when it falls in a heavy shower. *Coccoloba urifera* is remarkable from the pecularity of the calyx, which becomes pulpy and of a violet color, whence the plant is called the seaside grape. This pulpy calyx has an agreeable acid flavor and is edible. The flower stalks of *Hovenia dulcis* become extremely large and succulent, and are used in China as a fruit. It is said that in flavor they resemble a ripe bear. The flowers of the pumpkin were cooked and eaten by some of the tribes of the American Indians, especially by the Aztecs, by whom they were highly esteemed. The cauliflower, which has been known from remote antiquity, differs in a remarkable manner from all the other varieties of the cabbage tribe, whose leaves and stalks alone aro used for cullinary purposes. Instead of the latter being used, the flower buds and fleshy flower stalks, which form themselves into a fim cluster or head varying from four to eight or more inches in diameter, here become the edible portion and one of the greatest of vegetable delicacies. Tho flower buds of *Capparis spinosa*, a plant which grows on walls, etc., in the south of Europe, are pickled in vinegar in Italy and form what are commonly known as capers. These are chiefly imported from Sicily, though the plant is largely cultivated in some parts of France. The cloves of commerce are the unexpanded flower buds of *Caryophyllus aromaticus* (*Myrtaceæ*), a small evergreen, native of the Moluccas, but cultivated in several parts of the East and West Indies. Before the expansion of the flowers, which are produced in branched panicles at the extremity of the branches and aro of a delicate peach color, the buds are collected by hand, or else sheets and mats are spread under tho tree and the buds by brought down beating it with sticks. They are cleaned andthen dried in the sun. A uniform brown color is impared by slightly smoking then over a wood fire. The flower buds of *Calyptranthes aromaticus*, another plant of the same order, may be advantageously substituted. The flower buds and the berries of the myrtle (*Myrtus communis*) were eaten as spices by the ancients, and are still used in Tuscany instead of pepper. Long pepper is furnished by the immatnre spikes of flowers of *Charica Roxburghii*, which are gathered and dried in the sun. In chemical and composition qualities it resembles ordinary black pepper and contains piperine.—*Scientific American*, Dec. 11.

Correspondence.

To the Editor.

SUGAR CULTIVATION IN CEYLON.

Fiji, Nov. 1895.

SIR,—For about eight of the ten years I have been in the sugar industry, the question has been constantly in my mind, "Why are there no sugar-mills in Ceylon?" As I became better acquainted with the different varieties of the sugarcane, their habits and their needs, I wondered more and more, remembering, as I do, the soil, climate, and extent of your alluvial flats.

I know—in a vague way—that much money was spent, a great many years ago, in the attempt to grow cane and make sugar in Ceylon, and that failure was the result.

Precisely the same failure was made here between twenty and thirty years ago, when the site of the present capital of Fiji was all planted with cane and a large factory built. The whole of the money spent was lost, though sugar was then five times the price it is now, and the cost of labour seventy-five per cent less than at present.

In those days really nothing—comparatively speaking—was known of cane-growing and sugar-making. The price of sugar was so high that those tropical countries which stumbled into more or less right ways of doing things made huge fortunes, in spite of the now well-known fact that they only extracted about one-third of the sugar from their cane. Even so late as ten years ago, sugar planters were, for the most part, ridiculing the idea of chemical assistance in the factory! And at the present day the majority of cane-sugar-mills in the world are without chemists. In Fiji the sole survivors have employed chemists from the start, and do still; while those Companies who did not do so have all gone into liquidation.

But what was the cause of the failure with you? It was not the climate, that is quite certain, for the climate of your low-country is that of Demerara, than which there is no better for sugar in the world. There are canes which thrive in semi-tropical lands better than they do in tropical, and vice versa. There are canes for swamps, canes for dry lands, canes for wet climates, canes for dry climates. In the state of our knowledge of 20 years ago, there were any number of unknown reasons for the failure of sugar in any particular place. But tell a modern scientific sugar planter that sugar cannot be grown to pay in your climate on your alluvial flats, and he will laugh at you. Your latitude is the same as that of Demerara, and your labour is fully 50 per cent. cheaper; moreover you pay in silver and sell for gold.

The history of sugarcane-growing in Fiji is a curious one. First there was the *fiasco* mentioned above, then, a few years later, a small Company started on the Rewa river, and made sugar in a crude way for some years, and paid fairly well. Then the Colonial Sugar Refining Co. came down, in 1879-1880, and put up a large mill on the Rewa. At the same time a number of small Companies erected factories in various parts of the group, all of which have since failed but one, the Fiji Sugar Co., Ld. The C. S. R. Co. have now two other mills in addition to that on the Rewa; the latter, owing to the absence of the very conditions which you possess, viz.: bright skies and great heat has only paid about one per cent; but the Ba river mill—when the rainfall in only from 60 to 80 inches and which is favoured with bright skies and great heat has been an unqualified success from the start; though the cost of buildings, is double what it is in Ceylon, and labourers cost 100 % more than with you.

This is a very moderate estimate for wages at 1s added to cost of introduction and losses by death, &c., bring the cost of a day's labour to 1s 8d.

There is nothing whatever—it is impossible that there *could* be—to prevent the successful cultivation of cane and manufacture of sugar on any or all of your alluvial lands. Much has been said of the wonderful soil in Fiji; but chemical analyses and practical experience has proved this to be nonsense. Our soil is deficient in lime, nitrogen, potash and phosphates, and these we have to supply artificially and have been doing so for years. I should much like to have the analyses of some samples of your alluvial and compare the two. I would risk a good deal that yours is infinitely the better of the two.

Ceylon is still, I have no doubt, one of the most go-ahead countries in the world, and full of plucky and enterprising men. It has a climate—I speak of the lowcountry—which is a sugar planter's ideal: the cheapness and abundance of labourers coupled with the advantage of your currency, is equal to a bounty of several pounds per ton of sugar made. To think that all these advantages are unused because 30 years ago—more or less—some scores or hundreds of thousands sterling were lost in a futile endeavour to make sugar is at once ridiculous and exasperating. Ceylon and Southern India together could supply the world with sugar, and do it much cheaper than it is done now, and when they make a fair start, this and other sugar countries in which labour is scarce and dear will have to close their shutters.

Some of your readers may perhaps remember me. I was in Ceylon from 1875 to 1878, and most of the time on Kelvin estate, Dolosbage. To any old friends who see this letter I offer my salaams, and to any of your readers who may take an interest in the sugar question I shall at all times be happy to give any information in my power, being only too glad to help to find the way to the gold mine which I believe lies at your doors.—Yours faithfully,

JAMES D. DIXON.

CEYLON TEA IN CALIFORNIA.

San Francisco, California, U.S.A., Nov. 18, 1895.

MY DEAR "OBSERVER,"—As the present year of grace will have about run its course by the time a letter can reach you in Ceylon, I must write to wish you all in Ceylon a Merry Christmas and a Happy New Year; I hope 1896 will be a very prosperous year, and that with the advent of your new Governor several very necessary works, advantageous to the general community will be undertaken. I am glad to see prices for most products keep fairly high, especially those for Tea and Coffee. The old district of Madulsima keeps in the front with the formation of good companies, all of which will, I am sure, pay well: with good jât, fair soil, careful management, salubrious climate and cheap transport, this favourite district has still to see its best days: *but* (there is always a "but") roads, roads, roads, are wanted very much for the out-lying sections of this scattered district, and I am sure even Government and the P.W.D. will admit that the treatment meted out to long-suffering Moneragalla has been in the matter of roads, simply shameful.

Your "Overland" issue reaches me with wonderful punctuality, and, if delivered within 30 days from date, does not lose much time on the way. It is in great demand by several tea men, and last week I was asked for a few back numbers by a banker, who wished to read them! I have selected a few for him, containing the account of the opening of the Legislative Council, Galle Face Hotel meeting, Governor's Speech, etc., etc. The weather is usually cool about Galle Face, but there must have been a "hot wave" on the afternoon of that meeting.

"Pooh-Pooh" was certainly very severe on the bright little, right little, tight little island. Of course, Ceylon is absurdly *over*-governed, considering its size and population: no one for a moment will seriously contend the opposite. Can you give us the relative percentage per capita of the cost of governing—say Madras and Ceylon,—*everything* included, military, judicial, prisons and police, irrigation, education, etc., etc.? I think the figures will be interesting and surprising reading.

The other day I paid a visit to that fine iron ship the "Thomaseria MacLellan" of Glasgow, on the second voyage of which I was a passenger to New

Zealand nearly twenty years ago; she was then quite a show vessel, being the largest iron sailing vessel, afloat. I remember while we stayed in Rio de Janeiro for five or six weeks crowds of people used to visit and be shown over her. I noted the several changes in the fittings of the saloon, but the fine roomy cabins were still there. She can still do her 350 knots a day, and pass most sailers going. The present crew have been on board for over two years, which speaks well for the captain and officers.

I had the pleasure of meeting in a tea brokers' office last week Mr. W. D. Perry of Dublin. We talked tea, told stories, and found we had a mutual friend in Geo Kent Deaker, Passara, to whom he wished to be remembered. I gave Mr. Perry satisfactory news about our good friend, with which he was much pleased and delighted.

Your delegate is once more in London. I hear pretty regularly from Mr. Bierach, who is still hammering away at Ceylon Tea. It must be somewhat discouraging, however, to him, with no support or recognition from Ceylon for the good *honest* work he is doing: I presume you have heard *he*, and he alone, represents Ceylon, with a Ceylon Court at the great Pure Food Show at Philadelphia!! He has had a large amount of advertising of Ceylon and her teas in numerous papers, *gratis*, and a man who can do this in America is worth something, for your delegate's accounts will doubtless show that advertising rates are pretty stiff here. I have one before me from the *Evening Post*, New York, said to cost some £16 each insertion! I hope India pays half of this; the "cut" is in the usual rough style,—I am perhaps hypercritical, but it *is* an extraordinary circumstance that the three ladies therein depicted should be left-handed. I call it the "left-handed ad.," but perhaps these ladies are "ambidexterous." The "Eclipse" advertisement for America is a mistake. In this country, to quote Shakespeare!—they don't care what kinds or quantities of tea are consumed *in Great Britain.* There are very many "lovely" Americans, who like and admire the English, but there is no use blinking the *fact*, that amongst the middle-class both upper and lower (amongst whom our customers are to be found in the future) there is a very strong prejudice against the British and anything British. This dictum applies to the great majority of the people, those who have no time for reading anything but the newspapers, from which source they derive their information (very frequently misleading) and form their conclusions and deductions (necessarily as frequently wrong and unjust).

This dressing-up of an ordinary woman as an Indian Princess and parading her about the New York Food Show is a mistake, a bad mistake (as a general rule mistakes *are* bad, but this is more so than usual): it savours too much of the Midway Plaisance, and Fake style of business, and does more harm than good eventually. You will hear of nothing like that at the Philadelphia Food Show. The Ceylon Importing Co. of Iowa also applied for a concession, but were informed that Mr. Bierach was the party who was most acceptable and best known to the management.

What a great pity a few natives were not sent out early to Mr. Bierach: he writes me he could do so much more if he had had a few Tamils and Sinhalese.

Doubtless you will have reports and figures when the time comes, direct from Mr. Bierach or through the "30 Committee," but you can judge of the good work being done through Mr. Bierach's personality solely, when 500 cups of tea are being given away free daily, at no cost to Ceylon up to the present. No doubt his application to your worthy delegate for some assistance to help to defray the heavy expense he has been put to, will be promptly attended to as it deserves to be, and as I am sure the Planters and "30 Committee" would wish.

To overcome single-handed many obstacles, in the absence of any tangible support or recognition even, perhaps almost ignored though having valuable experience in his own line of business, and to carry through to success, in spite of all that must have been disheartening, this Ceylon Court at the Pure Food Show at Philadelphia, is, I consider, an achievement of which Mr. Bierach or anyone else, might be proud, and one that will merit and will gain the approval of Ceylon men, or I am very much mistaken.

It does seem most extraordinary to me that at a *Japan* Tea Stand in New York Food Shows the Planters' Association pamphlets (of Ceylon) should be distributed. This is entirely wrong; there is great ignorance about *Geography* as well as of Tea in this country, and people receiving these pamphlets from a Japan Tea Exhibit will naturally think "it is just some new kind of *Japan Tea*," and will, in most cases, continue to ask for Japan Tea.

I am awaiting papers with descriptions of the Ceylon Court at Philadelphia, which is much admired and is a great favourite. You will, along with most of your readers, have forgotten the name of Mrs. Rorer, the first authority upon cookery in America, who at the great World's Fair, Chicago, received a salary of $1,000 (£200 sterling) a month for lecturing upon cookery and making demonstrations. Our Court in the Woman's Building was a great favourite of hers, and I can see her now, coming in there "for a cup of your delicious pure tea," followed by a number of leading ladies. She holds the same position at Philadelphia, and is a strong, personal friend of Mr. Bierach's; it is doubtless owing to her knowledge of him in a great measure that he has been enabled to secure for Ceylon so many advantages. She condemns all teas but Ceylons, and never will endorse *China or Japan teas*; she is official lecturer on cookery, but presided the other day at a 5 o'clock tea in the Ceylon Court, she would not do this for any other exhibitor, nor will she speak during her lectures in favour of the products represented by the several firms and companies at the Show. Her lectures are on cooking and she does not use them for advertising purposes: yet it greatly surprises exhibitors, that Mr. Bierach and his Ceylon Court are so much favoured by her; as each day at the close of her lecture she says: "Now we will adjourn to the Tea Room." From the description given me I imagine this Ceylon Court is all it should be, and very attractive. Mr. Bierach has wonderfully good taste, there is a handsome carpet and beautiful standard onyx banquet lamps, with pink silk shades, eastern draperies, Ceylon photos nicely framed in cocoanut wood, baskets, mats, some brass ware, satinwood teapoys, lace, fans, &c., &c.

I have just received this moment a short hurried letter in pencil from Mr. Bierach. I think I may quote the following:—"Well, I am catching on, am solid with the management. In next week's programme, I am to have a *big ad.*; also in all the Sunday papers a send-off FREE, *no cost to Ceylon.* Last evening I had a call from the Associate Editor of the *Grocery World*, will have a free notice in that journal. And my article on Ceylon is to be published in *Household News*. All this for Ceylon." I respectfully and earnestly draw the attention of the "30 Committee" and the planting community to the above information, and I am sure, with their usual fairness, suitable recognition and appreciation will not be longer denied Mr Bierach. I only speak of him as I know him and as I found him, he is suited to the requirements of Ceylon here, and the "glad hand" and *not* the "marble heart" should be extended to him.

I hope he will "come out even" if nothing more, though it seems such a result would be impossible when everything is *free to all.*

The weather is simply magnificent here for this time of the year, and I am inclined to agree with Californians when they say reverently and with deep conviction, "This is God's country."

I had the pleasure of being conducted by the proprietors over the new Cliff House now rapidly approaching completion, in the place of the old historic house, burnt down last Christmas: the house is over 100 feet high, and I must have walked miles and miles in the building; it was pretty hard work as the elevators are not yet running. This will be a favourite resort, and I know of no finer marine view, as members of ships and steamers pass in and out of the world-famous Golden Gate. There are 10 dining-rooms, magnificent restaurant dining-rooms to seat over 100 guests at a time billiard and smoking-rooms, 15-feet verandahs all

round the five storeys closed in with glass, stabling for 100 buggies and horses. The driveway from town through the famous Golden Gate Park, about 5 miles in length, is being lighted by electricity, and on moonlight evenings *thousands* of bicycles, Bloomers both male and female, go out to the famous place.

The old familiar names begin to drop off: I noticed that of good old G. H. Hall, an amusing and good fellow. I hope R. P. M. of Tonacombe well soon be fit once more: I will send him the information required in a few days.

The demand for Ceylons does not improve here as rapidly as one would like, some of the large people say "We have no use for Ceylons, we cannot make as much out of them as we do on Japans and Chinas, and why should we bother with them." Others are again openly hostile to these teas, but they will in time be bound to hold them in stock. The leading buyers of Japans and Chinas told me the other day "that I would have to unlearn all I knew about Ceylon tea to do any business here"; but I took the opposite view of the case entirely, and politely hinted that they would soon find it advantageous to have a specialist in Ceylon teas on the staff of each house on this coast, and it will come to that in time.

Some Ceylon teas received recently have not been quite so good as they should have been, the quality and appearance must be kept up, for I see frequently some magnificent "Formosas," tippy and beautifully made, and those are our severest competitors.

I was asked on Wednesday last if I had been out to visit the Memorial Museum at Golden Gate Park recently. I replied I had not. I was told, "You should go out; there are some lovely things there now, just brought from Europe, wonderful mummies from Egypt, all tied and wrapped up, *dead ones of course!*" This is a fact.

Now I have wandered on without thinking, and if the *dead* mummy brings a laugh to some countenance about Christmas, my reward will be ample.

With all good wishes for 1896,—Yours truly,

T. A. C.

P.S.—19th Nov.—Just received 2 letters from Bierach. He had seen A. G. Scovell, who was much pleased with the Ceylon Court at Philadelphia; he has my address, so I hope to see him soon. Bierach has had a letter from your worthy Delegate from London, who says—"I have left matters connected with the Philadelphia Exhibition in Blechynden's hands." This is rather amusing, as Mr. Blechynden has no more to do with the Exhibit than the man in the moon. Ceylon must stand by herself. Bierach is offered space *free* for a Ceylon Court at a pure food show at Willmington, Delaware; another show is to held in Washington. Mrs. Roror is to be there, and Bierach can make *good arrangements there also*, but he cannot undertake all these without assistance from Ceylon.

An average of 500 free cups are being given away free daily, and for 2½ hours Mr. Bierach "talked tea" the other evening to a large audience of ladies, Mrs. Roror being present. Numbers of free advertisements appear weekly for Ceylon's benefit, so I hope to hear soon that full advantage is being taken of his valuable services. Just going to call upon Mr. Hulbert, late of Ceylon. In haste, T. A. C.

THE LARGE-GROWING VARIETY OF CACAO.

Victor Park, Corstorphine, near Edinburgh,

Dec. 12, 1895.

SIR,—Respecting the suggestions contained in your kind editorial remarks on my letter of August 21st in the "*Ceylon Observer*" regarding the large-growing variety of cacao tree, I may state that the ordinary mode of "exchanges" in vogue between colonial and home botanic gardens might perhaps be tried in order to obtain some plants. The island of Trinidad, reported to have a very complete collection of economic plants, may possibly possess some trees of this large-growing sort of cacao. Purdie, a collector who travelled in the low-lying regions of Colombia where this large-growing sort has in places been planted,—and was afterwards Curator of the Gardens if Trinidad,—is reported to have taken great interest in the cacao plantations of the island. I know not if he had any knowledge of the sort referred to; but it is possible that seeds or plants from this source might be procured. I fear, however, that plants would have to be relied on, as the germinating power of the seeds is said to vanish when dried. In planting in South America the fresh undried beans are always resorted to; and these are planted in the prepared sites at once where the trees are to remain permanently. But honestly I may state that I would have no strong expectations of the success of plants obtained through the medium of exchanges. This, because it is quite possible that the plants sent would be the same as those already growing in Ceylon; besides which there are other causes that might lead to failure. Undoubtedly it would be better for someone possessing the necessary knowledge to proceed specially to South America and make a collection of plants and convey them direct to Ceylon.

Geographically I may remark that Ceylon, together with a piece of Southern India, occupies, in point of latitude, the same identical position as the centre of the wild cacao region of South America. As regards suitability of soil, I may say that the most esteemed sites where cacao planting is carried on are the rich deep deposits usually met with on the banks of streams or rivers. Other comparatively level situations almost equally as good occur at the foot of the Cordilleras or in deep flat-bottomed valleys. These remarks apply more to the requirements essential for the large-growing prolific cacao tree; for the dwarf and hardier sort thrives under very varied conditions, growing from the level of the sea up to 3,000 feet in every variety of aspect, occasionally on bare hill-sides or in deep ravines, and with great diversity of soil, sometimes a clayey loam, or sand and gravel deposit, or quick-running sands all of which usually possess facilities for irrigation.

For shade a wide-spreading sparse-foliaged leguminous tree admitting plenty of light is preferred; and although the tender growths and leaves of various of the cacao trees are as the natives say "toasted", yet no serious injury appears to result therefrom. After a number of years when the trees begin to yield diminished crops and the beans become small they are coppiced. When the growths from the stocks are one year old they are removed with the exception of one; and the result is that trees treated in this way soon become equal and sometimes superior to newly-planted ones. When removing the young shoots some care is exercised in leaving only the stoutest, most straight, and seemingly best adapted to grow up to form a tree.

In the drying of cacao in South America considerable injury is frequently done to it through carelessness, inattention or slovenly and protracted method of working by which means the proper natural reddish colour of the beans is changed and the price consequently lowered. The preliminary course adopted by some of fermentation previous to drying is in my opinion likewise injurious. Ceylon cacao which often holds a prominent position in the European market appears to be more carefully managed; although as in the West Indies planters seem to "pick" and "size" the beans, a thing never thought of by those who plant in a big way in South America. In conclusion I may state that I have some confidence that suitable localities will be found for the cultivation of the large-growing prolific trees in Ceylon. The flat, more or less wooded region stretching from the coast inland including the debouch of ravines together with the banks of streams or rivers should possess a number of appropriate sites.

Some years ago when in Southern India at Nilambur I travelled over about 14 miles of wooded lands bordering the river there where I observed various tracts with forest growth equally as well suited for cacao planting as the best land I have anywhere seen in South America. Similar sites I have no doubt exist in Ceylon. I may remark that those expressions of opinion are the result of ex-

periences after having travelled in South America over nearly 2,000 miles in which wild cacao trees and plantations abounded. Of course I refer to those river-side localities as being specially adapted for the growth of the large-growing prolific variety, which I may add possesses several most valuable and important characteristics for cultivation to which I have not as yet made any allusion. Some of your readers may not be aware that cacao planting in South America is not always as it might be a pleasurable and profitable occupation. I have seen the leader of a *guerrilla* going with a number of men to the *hacienda* of a plantation and carrying away all the cacao found therein without, of course, paying anything for it. This sort of thing is spoken of as "taking donations for the *causa* of liberty." Yet in spite of such disasters I have never yet seen a cacao plantation forsaken. On one occasion in Colombia after a protracted revolution I went from the head of the Magdalena Valley down to the sea a distance of over 700 miles with cacao plantations some large and some small on each side of the river all the way. I took special notice that while I saw many plantations of coffee and other cultivated products "run to bush" or deserted I did not find a single cacao plantation abandoned. Finally I may add it gives me great pleasure to address the remarks herein contained regarding the large prolific cacao tree to the "*Ceylon Observer*," the first journal, if I mistake not, to have taken up the cultivation of the commercial products of the tropics. In thus advocating an extension of cacao cultivation, tea planters need not be alarmed that such a course would affect the tea industry. On the contrary the consumption of tea is *young*; and in many of the towns and cities of South America there is a wide field, only at present it is difficult on account of custom and other duties to recommend a popular system of agencies for the introduction of Indian and Ceylon teas.—I am, sir, yours most obediently,

ROBERT CROSS.

RUBBER CULTIVATION IN CEYLON.

2 Powis Place, Queen Sq., W. C., London, 19 Dec. 1895.

DEAR SIR,—Some years back I obtained a copy of your book on Rubber (2nd edition), but I see very little now about Sinhalese Rubber in the trade papers. I am very much interested in the subject and have been asked by a Foreign Government to advise on acclimatisation of rubber trees. Would it be troubling you too much to ask you to send me a postcard with half-a-dozen words to say whether it has succeeded in Ceylon, or how much you exported last year and the price? Did you get any *profitable* help from Kew? Apologising for troubling you, I beg to remain, yours faithfully,

C. PURCELL TAYLOR, D.Sc.

[We have thought it best to give the above letter publicity in our columns. Rubber has, so far, not been the success that it might and ought to be in Ceylon. The causes of this are various; but the chief one is the unwillingness or inability of our planters to wait for the slow return of their money which rubber gives. The subject is dealt with in the Planting Review prefixed to our new Handbook. The export of rubber from Ceylon in 1894 was of the value of R4,440.—ED. *T.A.*]

TRAVANCORE AND THE AMERICAN TEA FUND.

Braemore Estate, Dec. 23, 1895.

DEAR SIR, I beg to enclose the subscription list for American Tea Fund from this Association and would feel obliged if you would kindly find room for it in your paper. Yours faithfully,

R. ROSS, Hon. Secretary,
Travancore Planters' Association.

TRAVANCORE PLANTERS' ASSOCIATION: SUBSCRIPTIONS TO AMERICAN TEA FUND, 1895.

Estates.	District.	Agent or Manager.	R.	A.	P.
Poonmudi Estate	Poonmudi	J. S. Valentine	134	13	0
Braemore ,,	,,	,,	74	3	0
Invercauld ,,	,,	,,	59	1	0
Bonaccord Group	,,	,,	183	2	0
Merchiston Estate	,,	W. Marshall	62	15	6
Seenikali ,,	,,	Cameron Chisholm & Co.	39	9	0
Hillside ,,	Ashamboo	,,	34	14	0
Great Valley Est.	,,	,,	19	5	0
The Home Estate	,,	,,	36	6	6
Belford ,,	,,	,,	40	2	6
Kinnylies ,,	,,	,,	39	4	6
Makendragherry Est.	,,	,,	48	6	6
Milonie Estate	,,	J. Fraser	16	0	0
Balamore ,,	,,	,,	42	13	0
Sea Field ,,	,,	,,	69	5	0
Corrimoney ,,	,,	,,	64	2	6
Glenmore ,,	,,	,,	68	6	6
Achencoil ,,	Shencottah	E. M. Ewart	50	4	0
Kockwood ,,	,,	R. T. Miller	95	4	6
Venture ,,	,,	H. M. Knight	194	4	6
Donation from North Travancore L. P. and A. Society per H. M. Knight			100	0	0
		Total	1,472	10	6

R. ROSS, Hony. Secretary, T. P. A.

Central Travancore Planters' Association,
Peermaad, *via* Periacolam, Jan. 6th.

DEAR SIR,—Enclosed I beg to hand you the list of subscriptions from this Association to the Indian-American Tea Fund, and shall feel much obliged if you will publish the same in your newspaper. It is satisfactory to note, that every estate in the district has paid its full quota to the Fund, and that almost every superintendent has given a donation.—Yours faithfully, GRANVILLE L. ACWORTH,

Hony. Secretary.

	R.	a.		R.	a.
Arnakal	60	15	Woolbeding	40	10
Ashley	30	0	SUPERINTEDENTS.		
Bon Ami	195	5	A R Cox	25	0
Carady Goody	43	2	R W Courtney	25	0
Chenkara Group	218	10	J Finch	25	0
Fairfield	67	4	H L Holder	25	0
Glen Veary	91	0	R L Imray	25	0
Mary Anne	195	5	Dr. Little	25	0
Mount	51	0	A E Veale	25	0
Oopoocolam	102	3			
Penchurst	96	5	Total	R1,503	7
Stag Brook Group	136	12			

THE COLOMBO TEA MARKET.

Central Province, Jan 9th

DEAR SIR,—I consider the Colombo tea market at this time to be a veritable treasure trove to the fortunate buyers. London average is reported to be the same by wire- 9d.—with good demand, and yet you find the following averages for estates in the following districts:—*Agras*, Colombo average 54c. equal to a

	Gross	London av. of 9d	
Maskeliya - -	42 c.	do	7½d
Nuwara Eliya - -	50 c.	do	8¼d
Rakwana - -	36 c.	do	6¼d
Kelani Valley - -	38 c.	do	6¾d

Some of your broker friends may throw light on this rot in the Colombo market.—Yours truly,

TEA FARMER.

WANTED: A WEED DESTROYER.

Colombo, Jan. 10th, 1896.

DEAR SIR,—Can any of your readers advise me as to how weeds, grass &c. can be destroyed on an unused barbecue in Colombo? The roots are well down between the bricks, and it is quite impossible to get properly at them to dig them out. Is there any preparation or solution that would reach the roots and kill them off? I should be grateful for any information.—Yours faithfully,

PLANTING IN MATALE.

Jan. 12

DEAR SIR,—In the *Observer* of 10th inst. under the heading of "Planting in Matale" you state that an estate has yielded 800 lb. of made tea per acre over 300 acres giving a profit of R250·00 per acre. It is not quite clear whether you mean for the year or only at that rate for the month of December?

If the former, it is very fine, but it means that the tea netted 50 cents per lb. and cost only 20 cents or a profit of 30 cents per lb. It is possible, but doubtful, especially on old land. At 8 years' purchase (the accepted figures for low-lying estates) this would work out about £120 sterling per acre!! This is "one better" than Nuwara Eliya.—Yours, &c., J. A. R.

[A corrected para appeared in the next issue of the *Observer*. The rate is for December.—ED. *T.A.*]

ARECANUT AS A VERMIFUGE FOR DOGS.

Tunisgala, Rangala, Jan. 16.

DEAR SIR,—As the letter in your Directory for 1896 headed "Arecanut as a Vermifuge for Dogs" has been the means of killing the best beagle bitch I ever had, I think it only right that others should profit by my experience and be warned against taking the advice given in the letter.

Unless our dogs have insides similar to Capt. Vetrio's, it is impossible for them to live after having taken but one-half of the *smallest* dose recommended by A.W. At least so I have been told since; and I unfortunately proved it in one case at any rate.

I prepared the powder myself, and it was all carefully sifted through a piece of ceiling-cloth. So the dog's death was not due to carelessness on my part.

From one-half to one teaspoonful is the correct dose, I am told; but it will be some time before I try even that except on a pariah.—Yours faithfully, J. HALL BROWN.

[We greatly regret that we should have been the indirect means of causing the death of our correspondent's dog. The information in our Handbook was supplied by a former well-known Ceylon resident of much experience with regard to animals. It first appeared over ten years ago, and has been reprinted in each of our Handbooks since; but we do not remember to have had its accuracy called in question before. We shall be glad of the opinion of other correspondents on the subject. From Dr. Geo. Watt's "Dictionary of the Economic Products of India" we quote as follows regarding arecanut:—

"Is very useful as a vermifuge in dogs. I have given half a nut powdered, mixed with butter, to terriers with remarkable effect." (*Surgeon K. D. Ghose, Khulna.*) "The powdered young bark is anthelmintic, used for tape-worm; useful in animals; supposed to be the principal ingredient in Naldire's worm tablets." (*Surgeon W. D. Stewart, Cuttack.*) "It is a good anthelmintic, and expels thread-worms. I have often given half a nut to a dog mixed up in butter with very good effect. The worms are expelled after one or two doses" (*Surgeon K. D. Ghose, Bankura, Bengal.*) "Is a good vermifuge for dogs in 1 oz. doses (powdered)." (*Surgeon-Major J. Byers Thomas, Waltair, Vizagapatam.*) "Nut cut small and soaked in milk is a good vermifuge for dogs." (*Surgeon-Major P. N. Mukerji, Cuttack, Orissa.*) "Very useful in worms in dogs and other domestic animals." (*Surgeon H. D. Masani, Kurrachee.*) "Is a valuable vermifuge for dogs, especially for round-worms." (*Surgeon George Cumberland Ross, Delhi.*) —ED. *T.A.*]

VERMIFUGE FOR DOGS.

North Cove, Jan. 20th.

DEAR SIR,—In the *Observer* of the 17th I see a letter having reference to the Vermifuge for Dogs as given in your Handbook. Over leaf I send you the prescription I have always used for my dogs and have always found it effective and safe. It is always prescribed thus in "Answers to Correspondents" in the *Field.*—Yours &c., THOS. FARR.

Vermifuge—taken from The Field.—For a dog up to 10 or 12 lb. in weight:—

20 grains freshly ground arecanut and 2 grains of santonine followed in 2 hours by a table-spoonful of buckthorn and castor oil.

If the dog be more than 12 lb. in weight increase the arecanut at the rate of 2 grains for each lb. in excess.

THE WANARAJAH TEA CO., OF CEYLON, LD.

Jan. 20.

DEAR SIR,—We beg to inform you that the Directors of the above Company have declared an interim dividend of R40 per share for the half-year ending 31st December 1895, equal to 8 per cent on the capital of the Company.—Yours faithfully, BAKER & HALL, Agents and Secretaries.

PLANTING IN NYASSALAND.

Jan. 22.

DEAR SIR,—Enclosed we beg to hand you copy of a letter from our Superintendent in Nyassaland in which you may find something to interest the general public.—Yours faithfully,

P. pro. CARSON & Co.,
E. R. WALDOCK,
Agents and Secretaries,
Nyassaland Coffee Co., Limited.

Nyassaland Coffee Co., Milange, Oct. 15th, 1895.
Messrs. Carson & Co., Colombo.

Dear Sirs,—I arrived on the Company's land on the 10th and although far from being settled down I take the opportunity of sending you a few lines. I left Chinde on the 2nd September, but after 5 days on the river we had to return owing to the engine pumps breaking down. I again left on the 8th in another steamer, but owing to the river being very low, navigation was very difficult. I only reached Blantyre on the 1st October. I had to wait at the latter place 3 days for my luggage. I called on the Manager of the African Lakes Co. and made all arrangements with regard to banking, etc. Owing to labor being very scarce at present they were only able to give me 13 men to remain with me, beside sufficient labor to carry my goods, but I reached Milange on the 6th and had to stay two days with Mr. Bradshaw, as none of my boxes had turned up. I spent Saturday night at a village on the way as it is 55 miles from Blantyre to the Company's land; and as none of my boxes arrived, I had to be content with nigger grub (Indian corn and potatoes). I stayed one night at Lauderdale, but unfortunately Mr. Moir was away. At present I am camping out, and am busy building a temporary house.

EUROPEAN ASSISTANT.—While in Blantyre I tried to get an European assistant. Although I tried in several places I was unsuccessful. I found there was a big demand for Europeans and such a thing was not to be had. I then tried to get an English-speaking nigger. I also failed to get that, so I started off not knowing a word of the language, and with only 13 men. Since then I have picked up a good deal of the language which is not at all difficult. There is not the slightest doubt that a European assistant will be necessary to enable me to open up a large clearing next year, and as it seems impossible to get a man out here, it will be necessary to get a man from

Ceylon. It must be borne in mind that the labour here is very different to the Tamils in Ceylon, they are an ignorant lot, and it is a case of sheer necessity to stand by them all day, otherwise they will not work. The language is easily learnt, but the very fact of a European in the field keeps the niggers at work, to that an assistant would be useful immediately he arrived here. There is no experienced labor out here; they come for a short time and then go, hence the great necessity for an assistant. If I might suggest either of the following gentlemen both of whom expressed their desire to come out here, and at the same time, both have had a certain amount of experience with coffee, and certainly could show good testimonials, viz., Mr. G. C. Morris of Mahadowa, Madulsima, or Mr. Ch. Pinches, Naybeddy, Bandarawela. Mr. Morris I have known for some time,—he is a thoroughly conscientious and hard-working man and would be well adapted for this life. I mention this as it would be useless to send a man out here, unless he is prepared to lead a very lonely life, and at the same time great patience is required to work the niggers successfully, and the latter is of great importance as you are aware opening up land is any thing but healthy work and in consequence it would be advisable to let him have furlough at the end of four years. living out here is, I find, very expensive, the prices charged by the African Lakes Co. for tin things are exorbitant, and unfortunately they are the chief food, so I would suggest to start him on £150 with a £25 rise for each succeeding year. I might mention that the lowest paid man in the African Lakes Company gets £100 a year and his food found by the Company. Coffee, judging from the appearance of the coffee I have seen at Milange, has excellent prospect; the trees are healthy, and have lots of strong wood about them and yield well. I have as yet been unable to gather many satistics with regards to Milange coffee, but Mr. Buchanan of Blantyre told me a field of his 6 years old gave 7 cwt. an acre last year. I saw the field, and from appearances it could not be compared to Milange coffee. I noticed that what few fields have been carefully planted are doing considerably better than the majority of fields which have been hurriedly done. In most cases the coffee has been topped too high and the maiden crops (which are generally very heavy) have taken too much out of the trees. A considerable amount of empty berry is found in the Blantyre coffee but not in Milange, where the soil is undoutedly better.

COMPANY'S LAND.—Although I have not been able to go over much of the land, yet what I have seen is undoubtedly very good, and ought to grow splendid coffee. The land is very undulating and is thickly wooded, but there is not much virgin forest. In places the land is indifferent and is not good enough to plant, but taking it all round there is a large percentage of very good land. The soil is of a dark chocolate colour, and is very free; there is, however, an absence of rock or stone. From what I can gather the rainfall averages about 60 to 70 inches and the elevation about 2,000 feet.

ARTIZANS.—There are very few trained native artizans in Blantyre, and they are all engaged, so in the meantime I have engaged an European carpenter to assist in building a house at a salary of £7 a month. He is new to the country and is unable to speak the language, so is not of much use. It would undoubtedly be a saving to the Company if they sent out an artizan for a year or so—a man who understands masonry as well as carpenter's work, for in addition to building a permanent bungalow, a pulping-house and cisterns will be necessary, bricks can be made in the property, but lime is very expensive. In my opinion a Malay would be the best man to send out. If an artizan does come it would be advisable for him to bring a good supply of rice, as it is very expensive here.

BUILDINGS.—I am at present putting up a small thatched hut which will do for a few months, but a permanent bungalow will be necessary next year, in the meantime I will try and train some men as sawyers. Owing to the exhorbitant charges out here it would be advisable to send all necessary articles such as nails, screws, tools, etc., from Ceylon. I enclose list of articles necessary. I find the prismatic compass has not been sent. I will require one to survey the blocks of land with.

FURNITURE.—Beyond a small camp table and a chair, I have no furniture, and so I would be obliged if the Company would send out some. It can be obtained far cheaper in Colombo than out here including freight. Following are the necessary articles required:—1 almirah, 1 dining-room table, 4 chairs with arms, 1 office table, 1 sideboard, 2 beds, 2 washhand stands and any other articles the boy may think necessary. The furniture can be taken to pieces and packed in long cases and I can put it together out here.

LABOR.—At present labor is very scarce; there has lately been a war close to Milange, and in consequence local labor is very scarce; there is also very little labor coming down from the lakes at present owing to the country being in an unsettled state about these. An expedition has already been sent off to quell a disturbance. However, there is not the slightest doubt that as soon as the country is more settled, labor will find its way here in large quantities, and that, I am told, will be soon. The men, as I have before mentioned, are very ignorant and have to be looked after like a lot of cattle. They are a lazy lot and the only way to get work done is to stick by them the whole day, hence the great necessity for an European assistant. Labor is almost entirely paid by calico and I think it would be a considerable saving, if the Company imported their calico direct from England in the future. On this subject I will write more fully in my next report. In the meantime I can get all I require from the African Lakes Company.

CLEARING AND NURSERIES.—The rains, I am told, do not commence till the middle of November so as soon as I complete my hut I intend starting a clearing, also to open up large nurseries. I have written to the Manager of the African Lakes Company, asking him to send me some more labor, and if I can possibly manage it I will open 20 acres this year; in any case I will start it. I have made arrangements about buying plants. I have also booked 500 lb. of seed from Mr. Buchanan, but he says he cannot guarantee it, although he thinks it will come up well. This will be sufficient to start, and later on I will get more. If you have received advice about the Brazil seed I would be glad if you would let me know as soon as possible to enable me get nurseries made for it. It is, of course, impossible for me to say what average I will be able to open next year, as so much depends on labour, but with the aid of an assistant I think I could manage to open up 150 acres well. I will start clearing early in the year, so the sooner an assistant is sent out the better.

STATIONERY.—I would be obliged if the Company would send out a case of stationery with the Company's address printed on the paper. I have bought sufficient in Blantyre for the meantime; I will also require a copying book and press (see list).

GENERAL.—Chiromo is the nearest port on the river to Milange, it is about 80 miles distant, so that all goods will have to come that way. When you send out an assistant advise him to stop at Chiromo and he can send a messenger across advising me of his arrival and I will then send down men to bring his boxes up. He ought also to be advised to stick by all his luggage, as the African Lakes Company are very careless, and if a box is left behind it will probably not be seen for months. All cases ought to be labelled Chiromo, B.C.A., and carefully numbered, I might add that I have got all my tools with me, but I omitted to bring a list of them from Ceylon, so would be obliged if you would ask Messrs. Walker, Sons & Co., to forward one on, to enable me to see if they are correct. I regret Mr. Owen's necessity to leave the country, I presume another man from Ceylon will be sent out in his place. If I can be of any assistance to him, I will gladly do so. I enclose an order for some goods on Messrs. Cargill & Co, and would consider it a great favor if the Company would settle the account in the meantime and on receipt of the amount, I will forward a draft through the African Lakes Co. The goods might be brought out by the assistant.—I am, dear sir, yours faithfully,

(Signed) G. MORTIMER CRABBE.

A CUP OF TEA.

DEAR, SIR,—Although Ceylon and Indian teas contain possibly (?) more tannin than those of China, the taste for them is rapidly increasing, and it is to our interest to purchase the productions of our English planters rather than from the Chinese.

As tannin is a natural product of the tea-leaf, whether grown in China or Ceylon, and varies in quantity with the age of the leaf itself (as I am told by those who have grown it in Ceylon) we shall find its presence, even in the purest and best of teas. Moreover, people *will* drink tea, and many will not give a high price for it, nor make it with due care. They can, however, obviate all difficulties and dangers by making use of the Tanocea tea-toning tablets—a simple, useful, and perfectly harmless addition to their tea, the qualities and virtues of which I cannot write highly enough about. We have used these tablets for one and a-half years, and I cannot drink my tea now without them. Even the purest tea is denied to me without them, for they prevent the tannin from entering the infusion—it remains in the pot with the leaves.—Yours truly, B. J. MATTHEWS. —*Temperance Chronicle*, Dec. 27.

COFFEE PLANTING IN CENTRAL AFRICA.

PARTICULARS OF THE ENTERPRISE BY A FORMER CEYLON PLANTER.

Mr. R. S. Hunter, who is now engaged in coffee planting in Central Africa, and who has been in the island for the past few weeks visiting the local coffee districts and a few old friends that he knew when he was a planter in Ceylon, has been interviewed by a contemporary, who reports :—

"Do you show more in the neighbourhood of Blantyre yet ?"

"Well, we have got something like 6,000 or 7,000 acres there in cultivation by this time," was the reply, "and that is not bad for two or three years' work. The place is beginning to look like business now. There are not a great number of Ceylon men in the neighbourhood of Blantyre. A dozen ? No not so many ! perhaps eight ; but then there are several white men up from South Africa, though some of these don't know much about coffee ; and there are other men from other parts of the world who have been engaged in coffee planting elsewhere, and have been attracted to invest. I should say that within a fair radius of Blantyre, there are now 300 white men; not all planters, of course, but planters, storekeepers, &c. Touching coffee, there is no certainty about the planting, but, as far as we have got, the first crops seem to be very good and come on pretty fast and big, besides which it is much cheaper working there than here."

THE LABOUR QUESTION.

The labour is very much cheaper than it is in Ceylon. We pay there in cloth—so much cloth per month calculated at sterling rates—and the average pay is from two shillings to half-a-crown a month. There have been tribal rows, but the Commissioner (Sir Henry Hamilton Johnson) has now dealt with the leading spirits in those disturbances, and the labour is now not much interfered with. The natives are fine, big, healthy men, who would each make three Tamil coolies, and they work very well provided they are properly supervised, but they require a vision and pushing on with the work. Kept at it, we get as much from our natives as you do from Tamils, and their women and children all work also. No; we don't find them lines; they provide places for themselves, for the most part sleeping in grass-huts. Europeans are starting to put up decent bungalows, and the place is getting on ; but the chief difficulty at present is

THE DIFFICULTY OF TRANSPORT.

We are at present unfortunate in the way of roads and railways; but a railway has now been sanctioned from Chiromo to Fort Johnson at the bottom of lake Nyanza, and another railway is in contemplation from Quilimane in the coast to Chiromo, where it would join the line to Fort Johnson, and so we should get communication right up from the coast. That is what we hope for.

Already we may mention that Mr. Hunter urges that the Government should proceed with these works speedily, arguing that the planters are the backbone of the country. At present all the coffee grown is shipped to Chinde, where ocean steamers call, but Mr. Hunter says that this outlet will not be sufficient soon with the acreage now in bearing.

CEYLON MEN IN THE DISTRICT.

Not all Ceylon men that go over to Blantyre succeed, and according to Mr. Hunter some men have been the very reverse of successes there. He instanced one planter who got frightened at a dose of fever, and cleared at once, barely staying in the place a month. Personally speaking, Mr. Hunter says he finds the climate agrees with him. Fever is encountered with in clearing, as in Ceylon, but otherwise the district is healthy. On the other hand, he refers to Mr. Crabbe of Badulla, who went out to join the Nyassaland Company as a man who has made a very good start indeed, and one who seems to be the right man for the country. European planters, he says, now have little or no differences with the natives in those parts, and are not hindered by any warlike spirit displayed by the people there.

SUPERINTENDENTS AND MASONS WANTED.

On this same subject we append some further information kindly given us by Mr. G. J. Jameson of the firm of Messrs. Carson & Co., who have just received from Mr. Crabbe interesting news as to his work in Nyassaland. Mr. Crabbe reports that everything is very encouraging indeed; but further supervision is required, and Mr. Jameson is trying now to get hold of a couple of good men in Ceylon to send down to Mr. Crabbe to assst him, as Mr. Crabbe has a large area to work upon. "If we can get the men to go," said Mr. Jameson, Mr. Crabbe will proceed with opening-up operations to a large extent. We are going to have a meeting of the Directors of the Company next week to decide what is to be done. Mr. Crabbe cannot do anything on a large scale till he gets more assistance; but, given that, in the course of a year he would probably open up from 100 to 150 acres more. We also want to get some native artisans, Malays if possible—men who can do carpentering and masonry work. There is a good opening there for such men."

We may add that Mr. Hunter said on this point that some masons got down from India by Sir Henry Johnson did not turn out very satisfactorily, as the climate seemed to get hold of them more than it did the Europeans.

WOOD PRESERVING IN SWITZERLAND.—A simple, effective and cheap way of preserving wood from decay is practised in Switzerland in the preparation of posts for the telegraph service. A square tank, having a capacity of some 200 gal., is supported at a height of 20 ft. or 25 ft. above the ground by means of a light skeleton tower built of wood. A pipe drops from the bottom of the tank to within 30 in. of the ground, where it is connected with a cluster of flexible branches, each ending with a cap having an orifice in the centre. Each cap is clamped on to the larger end of a pole in such a manner that no liquid can escape from the pipe except by passing into the wood. The poles are arranged parallel with one another, sloping downwards, and troughs run under both ends to catch drippings. When all is ready, a solution of sulphate of copper, which has been prepared in the tank, is allowed to descend the pipe. The pressure produced by the fall is sufficient to drive the solution, gradually, of course, right through the poles from end to end. When the operation is ended, and the posts dried, the whole of the fibre of the wood remains permeated with the preserving chemical.—*Work* for December.

VARIOUS PLANTING NOTES.

TOBACCO AT TRINCOMALEE.—We take the following from the "Jaffna Catholic Guardian":—"A fine species of tobacco much prized by Jaffna traders for its strength and aroma is grown at Nilavelly in the Trincomalee district, where it is now reported that the plants in gardens and nursuries have been destroyed by excessive rains."

PLANTING IN MATALE.—The Matale correspondent of a contemporary writes:—Heavy cocoa crops are now being gathered throughout the district; the estates north of Matale are doing especially well. Liberian Coffee planting also making considerable strides. Messrs. Storey and Brockman are putting in 100 acres of Liberian alone on their new West Matale estate, and interplanting with cocoa is much in favour.

THE FIBRE INDUSTRY.—A correspondent of the "Jaffna Catholic Guardian" writes:—"The trade in Palmirah fibre which was reported by a contemporary as 'gone,' has again revived. The fact is, there was for sometime a rapid decline, not a total extension of it, owing to the fall in the London Market, which made it an unremunerative business to all concerned. With the rise in the price in London, the industry has begun to revive; but fibre cannot now be got as largely as formerly for love or money, owing to the very great havoc already made on palmirah plantations in every part of the province."

NATIVE COFFEE PLANTERS IN INDIA AND IN JAMAICA.—It is, says a contemporary, the intelligence and imitative faculty of the Indian peasantry that make them so valuable a factor in the labour market abroad. The want of these qualities are a drawback to industrial development. The most noticeable instance of this latter remark comes from Jamaica, where the cultivation of special products like coffee, cacao, kola, &c., have been carried on for a period sufficiently long to have been taken up by the indigenous population, if that population possessed these qualities to any appreciable extent. But we find a committee of horticulturists and planters, only now, proposing to improve indigenous industry in these directions, by lectures and the dissemination of leaflets containing instructions on new and improved methods. The native Jamaican coffee planter understands neither how to plant coffee, how to cultivate it, nor how to harvest it. Each of the processes is thoroughly understood by every coffee planting native of India, and some of the estates owned by them are models of up-to-date methods that will compare favourably with the properties of Europeans, whose practices they have imitated only too closely. No Indian coffee planter ever thinks of putting down a three-year-old coffee plant with berries upon it haphazard which the Jamaica native will not abandon, with the result that, at maturity, the tree is sickly, stunted and unprofitable. Nor will he allow his coffee to be over-shadowed or to remain unpruned and unweeded. He sees the benefits of these operations upon the estates of his European neighbours or of his erstwhile employers, and follows them so closely as oftentimes to make him a not contemptible competitor. In the matter of curing too, where self-interest, we should imagine, would dictate more rational methods, the Jamaican tries to dry his crop on the bare earth, in the wet season, actually resorting to the use of iron posts, as driers. Thus his coffee goes into the market defectively prepared, mildewed and in a condition that causes it to realize low prices. In this respect the Indian native coffee planter is immeasurably his superior, and although the latter's crop is not so presentable as that of the European, it turns it close. The committee to which allusion has been made above, talk of central factories in Jamaica for the purchase of coffee in the cherry, in order that it may be cured by a proper set of machinery. Something of the sort will have to be done if coffee planting is to be continued in the island. By latest statistics the exports are shown to have greatly decreased and to be gradually falling off.—*Indian and Eastern Engineer*, Dec. 7.

TEA IN INDIA.—Remarking on tea cultivation in Northern India, the *Madras Mail* says that the margin of profit has for the last four years been generally on the increase. The Jorehaut Company of Assam, for instance, has paid a steadily increasing dividend—in 1892, 10 per cent; in 1893, 12½ per cent; in 1894, 15 per cent; and in 1895, 20 per cent with the result that its shares which in 1892 only reached a maximum value of £34, have this year touched £52 and have never fallen below £44. The prices by the way for 1895 are taken from the November *Investor's Monthly Manual* so they are not quite complete for the year; but they show what we have already drawn attention to, viz. the greater demand that there has been for tea shares during the year. Referring to Southern India, our contemporary remarks that Travancore has gradually raised over the ruins of her coffee industry a splendid tea enterprise, giving once more an example of what optimism, backed by brains, can do in the face of actual disaster. Only last year Messrs. Finlay, Muir & Co. made a large purchase of land in this State for expressed purpose of tea cultivation, and not only are they opening out this tract of land as quickly as possible, but they are developing the whole country side; constructing roads and performing work which in any other country the Government would have gladly undertaken. On the Nilgiris tea has been cultivated for many years past, but so far as we are aware there has been no great extension within recent years. Reference is then made to the attention which is now being paid to the Wynaad.

SUGAR CULTIVATION IN CEYLON.—A former Ceylon planter, Mr. James D. Dixon, writes from Fiji (his letter is given on page 543) expressing the utmost confidence that—past failures notwithstanding—the cultivation of the sugarcane in Ceylon for the production of sugar can be made to pay, and pay handsomely. It will be seen that Mr. Dixon states his disbelief in our climate's having anything to do with the failures of former years; but on this point we have the support of experienced planters when we say that we fear it has everything to do with it. It has been proved by sad experience that locally-grown sugarcane contains too much water for its sugar to crystallize properly. However, if any capitalist is willing to risk his money in an attempt to produce cane sugar profitably in Ceylon, we have no doubt that Mr. Dixon will be willing to undertake the management of the enterprise. In the Planting Review prefixed to our Handbook we give a succinct account of past attempts at sugar cultivation in Ceylon,—Mr. Winter, the first editor of the *Colombo Observer*, being the pioneer of the industry in British times. From that Review we quote as follows:—

> Mr. L. Wray of Perak writing to the *Tropical Agriculturist* (on page 493 vol. 1884-5) expresses confidence that Ceylon might become a great sugar-producing country if land were judiciously selected and all modern improvements in cultivation and preparation, utilized; and we had about seven years ago (July 1888) an enquiry from a European at Nagpore who wished to try new machinery in manufacturing sugar in Ceylon; while one of the first questions asked by H.E. Sir A. E. Havelock after assuming the Government (May 1890) was, why sugar was not grown in Ceylon with its cheap labour supply.

It will be seen from the above that Mr. Dixon is not singular in his belief regarding sugar cultivation in Ceylon being made to pay. It must not be forgotten, that among the natives sugar-cane would have to compete with the palm sugar (jaggery) so largely used.

A FORMER CEYLON PLANTER IN BRITISH COLUMBIA.

We have received a letter from Mr. E. W. Harris, formerly a planter in Ceylon, and for some little time in charge of the fish-curing yard at Kalpitiya. Mr. Harris writes from Victoria, B.C., on Dec. 14 last:--

"How is Uva doing? Do you know if Mr. Crowther who worked on Blackett's estates (Kenakelly) is still in the island?* There is a large field for the sale of Ceylon teas both in Canada and the Pacific coast of the U. S. Can I be of any help in the matter? I pay 25c (equal to 50c of Ceylon money) for ½ a lb. of Ceylon tea here. I have been 8 years on this coast. Great things are being expected from the gold mines of Rooteney, but a lot of capital is required to develope the quartz in which it is found."

THE INTRODUCTION OF "LADYBIRD" BEETLES INTO CEYLON.

Mr. E. Ernest Green writes to us from England:—

The failure of our first attempt to introduce "ladybird" beetles must not discourage us from trying again. The experiment seems to have been most successful in the Sandwich Islands, where the same kind of beetles that were despatched to Ceylon have increased rapidly and are doing good service against a scale-bug closely allied to our *Lecanium viride*. I have written to my friend Mr. Albert Koebele, who is responsible for the experiment in the Sandwich Islands, asking him to send us a supply direct from there. They would be consigned to care of my brother Mr. G. H. Green. I also propose to get another supply from California, to be sent to me here in England. I shall endeavour to propogate and establish them here in a greenhouse where I find a plentiful supply of a scale insect (*Lecanium alienum*). I can then choose my time and send out consecutive consignments to Ceylon. The initial difficulty will be to get the insects over to England. For I am surprised to find the same lack of convenience for interchange of parcels between this country and America as exists between the latter and Ceylon.

THE PHILADELPHIA COMMERCIAL MUSEUM.

OFFICERS OF THE BOARD.

Wm. Pepper, M.D., LL.D., President; Charles H. Cramp, Vice-President; Clarence H. Clark, Treasurer; Wm. P. Wilson, Sc. D., Sec. pro tem, and Director of the Museum.

PLAN AND PURPOSE OF THE PHILADELPHIA COMMERCIAL MUSEUM.

The Philadelphia Economic and Commercial Museum is a municipal institution established by the City of Philadelphia.

The Museum consists of collections of natural products from all the countries of the world which have already entered our markets, or which may be made available for them, together with samples and cases of manufactured products from foreign countries, which may serve as aids to our manufacturers.

THE OBJECTS OF THE INSTITUTION.

1st. To bring before our manufacturers, dealers and consumers all the varied products of the world, that they may make the best selection for their own pecial interests.

2d. To publish all possible scientific and useful information concerning these products which may aid the manufacturer and consumer in his choice.

3d. To place on exhibition manufactured articles and samples, with full information from all markets which we ought to enter or control, and to furnish useful information concerning opportunities in foreign ands to our merchants and manufacturers.

The most important parts of the exhibits from Mexico Central and South America, Australia, South Africa, and many Asiatic countries at the World's Columbian Exposition, were, at its close, removed to Philadelphia. Similar products from all other countries have been secured, and are being rapidly added to the collections.

DIVISION OF EXHIBITS AND DEPARTMENTS.

I.

EXHIBITS ACCORDING TO COUNTRIES.

Under the classification a visitor may study the resources and commercial features of any particular country; can see the extent and variety of its products; investigate the character of its industries, climate and soil, means of transportation and manner of communication with the commercial world, and thereby be enabled to derive from the exhibits, maps, charts and other data collected, valuable information necessary in the conduct of his business.

II.

EXHIBITS ACCORDING TO KINDS OF PRODUCTS.

Under this classification the mnufacturer, merchant or consumer interested in any particular commodity may here find systematically arranged and displayed samples of the various products which interest him, collected from all sections of the globe, with all obtainable data possible, whereby he may judge of their commercial value. For instance, the manufacturer of wood will have displayed for his benefit thousands of samples, embracing nearly all the woods of the world, in sufficient size and quantity, and with data necessary for him to determine their value in his particular industry. Likewise the textile manufacturer may here find samples of the wools, silks, cottons, vegetable fibres, etc., from every foreign country, comprising the most varied and complete collection of its kind in existance. The collection of hides, skins, leather, tanning materials, dyestuffs, food products, oils, medicinal drugs and herbs, minerals, etc., are intended to enable the dealer in these products to keep fully posted upon the constantly changing conditions of the markets of the world. These collections will be renewed or augmented as necessity may require.

III.

SAMPLES OF FOREIGN MANUFACTURES.

This will be a collection of samples of merchandise required in foreign countries, especially in the new markets of Spanish America, Australia, South Africa and other countries, the object being to show to the American manufacturer what his European competitor is doing in the foreign trade of these countries, and suggest to him new lines of goods which he may produce and sell with profit. Novelties and improvements made in European manufactures in standard goods and staples will be promptly reported. Detailed information as to the source, cost of production, selling prices, import duties, manner of packing, patent rights, etc., etc., will be furnished.

IV.

BUREAU OF INFORMATION.

Arrangements have been made with the Department of State at Washington for special reports on these subjects from consular officers in all parts of the world. The Museum will have correspondents in all foreign countries, men of experience, familiar with the conditions, and peculiarities of their markets, who will forward regular reports concerning commercial possibilities and the conditions of trade of their particular localities, thus enabling the manufacturer and merchant to keep in close touch with the markets of the world.

Business directories and copies of important periodicals will be kept on file; also books of reference in all languages, statistical reports from all countries, and other publications bearing upon the question of trade.

Detailed information will be furnished manufacturers, upon inquiry, concerning commercial opportunities and the demand for specified products in any locality, together with the reports upon prices, duties, credits, etc.

Special efforts will be made to procure early and complete information concerning the plans and spe-

* Yes,—manager of the Kellie Co.'s estates.—Ed, T.A.

cifications of proposed public improvements and private enterprises that may be open to contract.

V.

A SCIENTIFIC AND EXPERIMENTAL DEPARTMENT.

In this department a careful study of the scientific and economic value of all products collected will be made. As for instance, tan barks will be carefully examined; woods will be studied; gums and resins will be tested. Many new vegetable fibres will be investigated with reference to new applications, and in general new articles will be subject to scientific investigation for the purpose of determining their commercial and practical value. Through the publications of this department, the institution will co-operate and exchange with all other scientific and educational museums of the world.

INDIAN TEA ASSOCIATION.

CALCUTTA, Dec. 16, 1895.

Abstract of Proceedings of a Meeting of the General Committee held this day.

Read letter of 2nd Oct. from Mr. E. C. Ringler Thomson, British Vice-Consul for Khorassan, and Sistan, Meshed, in reply to the Committee's letter dated 10th September, on the subject of inferior Indian tea exported to and sold in Persia. Mr. Thomson forwarded four samples of tea, with his letter in support of his previous official statement, and three of these on being valued were found to be absolutely worthless; the value of the fourth being estimated at not more than 7 annas per lb, although selling in Persia at R1-4, this being the one only one of the four samples sent, which was fit for consumption.

Mr. Thomson's letter is printed as an appendix to the minutes for general information and the Committee had since been in correspondence with the Kangra Valley Planters' Association on the subject. A reply had been received from this Association, but was too late to receive consideration at the meeting and the Committee are now endeavouring to find out the best means to prevent the export of such deleterious rubbish under the name of Indian teas.

Dated Meshed, the 2nd October. 1895.

From, E. C. Ringler Thomson, Esq.,

British Vice-Consul for Khorassan and Sistan.

To, The Secretary, Indian Tea Association Calcutta.

I have the honor to acknowledge the receipt of your letter No. 311 ?, dated 10th September 1895, stating that certain remarks in my recent Trade Report are likely to do considerable damage to the Indian Tea Trade and asking me for samples and particulars of the tea sold in Khorassan.

In reply I send you four samples of tea which sell at about Re. 0-10-0, 0-12-0, 1-4-0 and 1-10-0 per pound respectively. The two former are the qualities drunk by the mass of the people, and the two latter by the richer classes. Persian gentlemen have often complained to me that the after-effects of even the best of these teas is bad, and I agree with them. Really good Indian Tea is not procurable in the town at any price: but fair Chinese tea called here always "Russian Tea" can be obtained at a high price. Thus the people of Central Asia have come to believe that India cannot produce good tea. The Indian tea is brought here from Bombay via Bundar Abbas. The worst is packed in bags, sewn up in skins; and the better sort in boxes, also sewn up in skins. The parcels do not as a rule exceed 90 lb in weight, as camels are not always available at Bundar Abbas for transport, and donkeys are therefore generally employed. The bad tea I believe comes chiefly from Kangra. And I have only recently heard from a planter there that "200,000 lb of rubbish are going from this to Bombay this year consigned by native growers. It is sent to sell at 5 annas per lb or under and is about as bad as tea can be." This tea I imagine was intended for the Meshed market and seems to correspond with the cheaper samples I am sending you. I hope you will now allow that my remarks were justified. They were not dictated by a desire to damage, but to improve the Indian Tea Trade and to remedy an evil by giving it publicity. The people here are now so accustomed to rank tea sweetened excessively that ordinary good tea at first appears to them flavourless. I have, however, found that it takes a very short time to teach them to prefer the latter. The green tea sent here from India seems to be much on a par with the black tea and comes from the same direction. I know by experiment also that a sample of Indian green tea specially manufactured by a planter at Kumaon was preferred by a native of Central Asia to that from China. The duty on good Indian green tea would probably be the same as Chinese green tea.

I am obliged to you for pointing out my error about the selling price of black tea in London and I am sorry I made it. I learnt my mistake three months ago, but too late to alter it this year.—*Indian Planters' Gazette*, Jan. 11.

LAND RECORDS AND AGRICULTURE IN MADRAS.

We have had before us for some weeks, awaiting a convenient season for review, the Report on the operations of the Department of Land Records and Agriculture in the Madras Presidency, for the official year 1894-95. There is not much in it of local interest, but a cursory notice of it may suggest some points worthy of local adaptation, if not adoption. The document we are noticing emanates from the Board of Revenue and is a review of the operations of the Land Department. It is followed by the "Order" of the Presidency Government, approving or disapproving the suggestions and comments of the Board. The matters dealt with are very varied and comprehensive and embrace (1) The Organization and Maintenance of Village Records, (2) An Analysis of Districts, (3) The Collection of Revenue in Precarious Tracts, (4) Measures of Protection, (5) Agricultural Experiments, (6) Cattle Breeding and Veterinary Establishments, and (7) Miscellaneous.

The oversight of the Organization and Maintenance of Village Records devolves on the Director of Land Records and his Deputy who are aided by Revenue Inspectors. The year's work includes the re-settlement of villages in which the settlement had expired, the training in survey of *karnams*, or village accountants, who are employed in replacing boundary stones, subdividing survey fields, and generally aiding the permanent District Surveyors who are responsible for maintenance and correction of village maps and survey records. When the immense tracts of land to be dealt with in the Southern Presidency are considered, and also the constant subdivision of holdings, the importance of a subordinate staff can be readily understood; and the Superintendent of Survey has found it necessary to make arrangements for holding "annual survey schools," lasting for 10 or 15 days in each taluk, to prevent the *karnams* from forgetting what they have been taught, and to keep them in practice. In these schools the knowledge and work of the *karnams* are regularly tested by Survey Officers, to each of whom a certain number of schools are apportioned for inspection and report. The work of survey and re-survey done under this system is considerable. The area to be re-surveyed in four of the districts was found to be 9,889 square miles—or considerably over one-third of Ceylon—of which 8,101 square miles had been surveyed up to date—2,327 square miles having been completed within the year.

The second head—Analysis of Districts—has reference to statistical registers, showing the con-

dition of each village, of which a continuous record is thus available; bearing on irrigation, culturable extent, waste land, variations in holdings, the number and condition of flocks and herds. As, however, these particulars are available from other sources and reports, it has been recommended that the economic reports are of no practical value and should be discontinued; but the Government has reserved its decision on the point. In regard to the Collection of Revenue in precarious tracts the greatest consideration seems to be shown to the ryots, with the result that no difficulty has been experienced in the collection of revenue in any part of the Presidency. We remember complaints here, before the abolition of the Paddy Rent, that the rent was made payable before the crops were reaped; and opportunity was thus afforded to the wily headman to acquire the land or the crops under a forced sale, or the cultivator was driven to borrow at usurious rates—literally cent per cent, by undertaking to deliver to the lender paddy twice the value of the loan. On the adjacent continent, we find the time for the payment of revenue in instalments revised, so as to enable the ryots to sell their produce before being called upon to pay the Government dues. Further modifications have been recommended for the relief of the ryot, but they remain to be adopted. Had similar consideration been shown here, the Paddy Rent may have been saved; but rigid exaction did its work.

Under Measures of Protection are included the extension of communications, advances to agriculturists, and irrigation. Under the first head we note the completion of the East Coast Railway as far as Berhampur, 400 miles, and Surveys for Railways aggregating 458 miles—surely a goodly record for the year. Among the latter we find 102 miles of Madura-Pamban track, which we hope is destined some day to help to connect our little Island with its big neighbour. The advances to agriculturists represent a benevolent, and to a great extent, succesful, attempt to combat the great evil of usury, on which we had occasion to write recently with reference to contemplated legislation. The loans during the year amounted to R279,591, a falling off as compared with the previous year when R450,921 found their way into the hands of needy agriculturists; but in the year before, the sum was as large as R2,275,159. It would be difficult to estimate the extent of relief which these enormous sums afforded to hundreds and thousands of families. We should think that state loans of this description are a far more efficient corrective of usury than direct legislation. The diminution in the sums lent the two last years is explained, partly by the magnitude of the previous loan, but mainly by the improvement in the seasons since the distress of 1892. Loans, however, are only a temporary expedient, and can only lighten distress. To avert famine, railways and irrigation works are needed, and both these are receiving attention year by year—the latter to help to increase the food supply, the former to transport food into the famine districts in emergencies, and generally to aid in the development of the resources of the country. On the Rushikulya works in Ganjam, the expenditure during the year was R3·11 lakhs, raising the total up to date to R36·80 lakhs, while on the Periyar project (with which the name of Colonel Pennycuick is honourably connected) R9·60 lakhs were spent during the year, or R73·56 lakhs up to date. The expenditure of these enormous sums,—and they by no means represent all that was spent last year—if it proves the greatness of the needs of a teeming population, establishes also the solicitude with which the Government labours for the welfare of those under its rule, and may be regarded as one of the grand characteristics of British rule.

Agricultural Education does not seem to have proved a success, for we find the re-organization of the Agricultural College has been necessary, while as a means of increasing the number of students, the holder of an Agricultural Diploma is to be placed on a level with graduates, so far as employment in the public service is concerned. The College Farm continues to be managed as a Dairy Farm—the milk produced finding a ready local sale; and the development of the farm at Saidapet is contemplated so that, like our own Government Dairy, it should supply milk to the hospitals, and also to the troops in Madras. There is not much that is definite on experimental crops, and the inquiry into the cultivation of cotton and indigo which was begun two years ago has not been completed. As here, the difficulty of having iron ploughs repaired has stood in the way of their extended use. We do not read that objection was raised to the weight of the plough, but the cattle in India are of a larger and stronger breed than ours. The paragraphs on cattle-breeding and veterinary establishments are of interest, and suggest the need of some organized experiments here under Government auspices. We may revert to this subject again.

ARECANUT AS A VERMIFUGE.

It is well known fact that the arecanut contain a fluid and volatile alkaloid, Arecolin, closely allied to Pelletierin, the alkaloid contained in the bark of the pomegranate root, but much more poisonous than the latter. The arecanut has been introduced into veterinary practice in Germany over 12 years ago; but I am sorry I am unable to give you the doses used. No doubt they are carefully proportioned to the weight of the animal to be treated. I find that it has also been used in the human subject to expel tape worm, in doses from 60 to 90 grains for an adult. I do not however recommend its use, as it is highly poisonous, causing some peculiar and disagreeable symptoms, such as increased action of the bowels and violent diarrhœa, salivation and bronchitis, contraction of the pupils and a very irritable condition of the heart.

Death results from an overdose. as in the case of Mr. Brown's dog. M. D]

TEA AND CAMPHOR IN FORMOSA.

In the *Scottish Geographical Magazine* for Nov. 1895 is an article on Formosa by John Dodd, being the abstract of a paper read at the meeting of the British Association, 1895. From it we make the following extracts :—

I may as well describe here how the Hakkas and others manufacture camphor. Small shanties are scattered over the hills where the camphor-trees grow, and in all directions the clearing of the woods is going on at a rapid rate. Some trees are cut up for camphor-making, others are sawn into planks and knees for the building of junks and boats of all descriptions. Fine specimens of camphor wood, ten feet and more in width and several inches thick, are sent down to the coast, though to facilitate transport they are often cut down considerably before they arrive at the port of shipment. Other timber is also exported, such as the *siao lam*, a beautiful wood nearly as light as maple, and suitable for furniture. There are also hard woods and black wood as

heavy as metal: at least seventy species of timber have been collected. On the hillsides are built distilleries consisting of oblong-shaped structures principally of mud bricks, and about ten or twelve feet long, six feet broad and four high. On each side are five to ten fire-holes about a foot apart and the same distance above the ground. On each fire-hole is placed an earthen pot full of water, and above it a cylindrical tube, about a foot in diameter and two feet high, passes up through the structure and appears above it. The tube is capped by a large inverted jar, with a packing of damp hemp between the jar and cylinder to prevent the escape of steam. The cylinder is filled with chips of wood about the size of the little finger, which rest on a perforated lid covering the jar of water, so that when the steam rises it passes up to the inverted jar, or condenser, absorbing certain resinous matter from the wood on its way. Whilst distillation is going on, an essential oil is produced, and is found mixed with the water on the inside of the jar. When the jar is removed the beady drops solidify, crystallisation commences, and camphor in a crude form, looking like newly-formed snow, is detached by the hand, placed in baskets lined with plantain leaves, and hurried off to the nearest border town for sale.

Tea is now by far the most important article of export, though camphor is still in demand. Other articles, such as coal, pith paper, skins, rattans, hemp, sugar, and indigo find their way to the mainland, and a good deal of timber—camphor and hard-wood—is also exported.

Coal is the principal export of Kelung. The trade has had many ups and downs, caused by the obstructions placed by the authorities in the way of foreign trade. The coal seams in the neighbourhood of Kelung and in the northern hills as far as the centre of the island are practically inexhaustible. There are also less important imports, such as kerosene oil, wood for tea chests, and pigs of lead to line them, and, when the Japanese have put things in order and the country has been more thoroughly explored, no doubt many other articles adapted for export will be found. With regard to camphor, as in other commercial matters, the Chinese Government has acted very foolishly. For over thirty years to my knowledge there has been a constant demand for camphor, and yet the administration has done nothing to prevent the reckless waste of the forests and taken no steps to provide for the re-afforestation of uninhabited tracts useless for cultivation. True, as far as I have explored the mountains of the interior, camphor-trees seem to be exceedingly numerous, and there is at present no fear that the supply will run short for many years to come. But the increased demand for camphor in these days of smokeless powder may hasten the destruction of the trees, and therefore it is to be hoped that the Japanese will assure the supply in the future by planting saplings on waste lands. I planted a lot in my garden in 1869, and when I left in 1890 they were trees thirty to forty feet high and upwards. From this experiment I conclude that trees fifty years old would be large enough for all ordinary purposes to which the timber is applied. As for camphor, it may be extracted from leaves and twigs, so that comparatively young forests will yield material for the industry.

While exploring the camphor districts in 1865, I came across cinnamon and wild tea plants, the latter being ten or twelve feet high. I got down a fair amount of cinnamon to the coast, but found that the expense of sorting the outer and inner barks and packing them for shipment to England was too great. With tea I was more successful. On making inquiries I found that between Kelung and Banka, and to the south-west of the latter town, small patches of tea were cultivated in the gardens of farmers, but that it was grown principally for home consumption. All the tea I could get I bought up, and finding that it fetched a good price in Macao, I at once made loans to the farmers, through my *compradore*, for the purpose of extending the cultivation, and also imported slips of the tea plants from Amoy. I then started firing on a small scale at Banka, and afterwards took larger premises at Twa-tu-tia. In the course of three or four years, Formosan teas acquired a reputation in America, and before the end of the sixties I had dispatched in one year two sailing vessels to America, one with a full cargo and the other nearly full. Others followed my example, and the exports increased by bounds year after year. The Amoy and Fuchow merchants were not at first in favour of Tamsui becoming a tea-port, but before long they began to join in the Formosan tea-trade, and now nearly all the tea is sent to Amoy for sale, and the merchants there have done much to enlarge the yield by heavy advances to the planters. I have no statistics showing what is the present quantity of tea exported from Tamsui, but I should say that it is certainly not less than 500,000 chests, equal to about 20,000,000 pounds. The hills and soil of North Formosa are excellently adapted for tea-growing, and, indeed, for almost any crop.

INDIAN PATENTS.

For a method of rendering tea leaf pliable for purposes of rolling or twisting without resort to natural or artificial withering.—No. 8 of 1891.—Horace Drummond Deane, of Kintyre estate, Maskeliya, Ceylon, planter, and John Thomson Race, of Hatton, Ceylon Engineer, and thus preventing all fermentation and oxidization by the application of steam to freshly plucked tea leaf, and of an apparatus for applying steam to freshly plucked tea leaf. (From 5th January 1896 to 4th January 1897.)—*Indian and Eastern Engineer*, Jan. 18.

DRUG REPORT.

(From the *Chemist and Druggist*.)

London, January 2nd.

NUX VOMICA.—The new crop of this drug is now arriving at the Indian shipping ports. It is said that it is so wet as to be unfit for shipment at present.

ESSENTIAL OILS.—Without material alteration. For Citronella oil it is reported that 1s 10d per lb, c i f terms, is asked for present shipment while 1s 8d per lb, c i f is quoted for shipment end of May. On the spot the price is 2s per lb. Lemon-grass oil, 2⅜d to 2⅝d per lb on the spot.

QUININE.—Has been extremely quiet this week, and no wholesale transactions have become known. Second-hand German in bulk is quoted at 13½d per oz. at which figure here would be sellers.

THE NUWARA ELIYA TEA ESTATES COMPANY.

The formation and operations of the Nuwara Eliya Tea Estates Co. mark a new departure in the history of Ceylon Plantation Companies and an important era in the Tea-planting Enterprise of the Colony. A good many years ago, Mr. Arthur Thompson, of the well-known Mincing Lane Firm, while visiting Ceylon, made it clear that the tea estates in and around Nuwara Eliya, at an elevation of 6,000 feet and upwards above sea-level, stood on a basis of their own, apart, it might be said, from all other plantations in the island. Their teas were peculiarly *sui generis* for delicacy and flavour, and Mr. Thompson could only compare them with the fine "Darjilings" which always top the Indian tea market and of which the quantity producible is, and always must be, very limited. The same is absolutely true in the case of Ceylon in regard to the quantity that can ever be sent into the market of the specially delicate-flavoured teas of the Sanatarium and Kandapola. For, even if the Ceylon Government were permitted to utilize some of the Crown land over 5,000 feet for tea gardens, the area over 6,000 feet that could possibly be alienated for cultivation would be extremely limited; and it may be said there never can be such another stretch of tea in Ceylon at a similar

elevation as that below the Pidurutalagala range from Lover's Leap and Pedro eastwards and on the outlying spur of the Sanatarium. This being the case it will be readily understood that the Nuwara Eliya Tea Estates Co., in securing 1,520 acres of the very tea fields we are describing and in a continuous, almost unbroken area, has secured a uniquely valuable tea plantation property—unequalled perhaps, acre for acre, if quality as well as quantity produced is taken into account, anywhere else in India or Ceylon. For, it must be remembered, that not only is the climate of the Sanatarium and neighbourhood favourable to the production of the finest, most delicate teas, but the soil—deep black, friable loam—and the lay of the land, undulating easy slopes or flat plateaux can nowhere else be parallelled at least in this island. We suppose Pedro (sold to the Company by Capt. Bayley) is, acre for acre, certainly the richest tea garden in Ceylon when its producing capabilities up to 600 lb. per acre as well as quality of tea are considered, and Pedro as well as several other properties purchased have the immense advantage of lying under the Pidurutalagala range or spurs, a large portion under cliffs from which a perennial supply of fresh soil, equal to the best and most enduring manure, must trickle down, season by season, on to the slopes and flats below. Then in careful opening of the land, selection of jât, planting and cultivation, the tea properties purchased by the Company will compare with any that we know of, in our best cultivated districts. We need say nothing of the special salubrity of the district both for Europeans and coolies very near as it is to one of the finest climates in the world. Nor is the district behind in its popularity with coolies who develop bigness and strength unknown lower down, and who are specially proud of their vegetable garden privileges when these are made available. In transport facilities too, the district is specially favoured with a first-class road to the first-class railway at Nanuoya and the prospect of the first mountain road tramway in Ceylon being constructed from Nanuoya to Kandapola, passing right through the Company's estates. But these and several other advantages of a similar kind are not to be mentioned in the same breath with the superiority of the teas produced, the wonderfully heavy crops considering the standard of flavour and the fact that it is physically impossible—so far as we can judge—in either India or Ceylon to produce a superabundance of such teas. The demand rather must continue in excess of the supply, always ensuring a high standard of value for Nuwara Eliya and Kandapola teas.

Is it any wonder then that the capable London promoters and Directors of the Company which has secured the name of the Sanatarium, acting on the advice of a planter of the exceptional shrewdness of Mr. Megginson and an agency house with the long and varied experience of Messrs. Leechman & Co., should have determined to secure the group of continuous properties above referred to, even at prices hitherto unknown in the island? Allowing a fair value for the very fine land that is to be opened for tea forthwith and for the brickfields, bazaars &c., the price paid for the area planted with tea, averages £85 per acre. We think that everyone who realizes the unique position and value of the estates will consider this price most reasonable. Should the fine fuel reserves become exhausted after many years there will always be the large Crown reserves which border on all the properties to fall back on and this is an advantage of considerable importance for the future. We may be sure that the shrewd men of business here and at home, working for the Company, have well considered all the bearings and contingencies of the case; and we can only, for ourselves, congratulate the shareholders on securing the very finest selection of tea estates in Ceylon—unequalled too, as we omitted to say above, for the means of economical working, through their contiguity, easy lay of land and the fact of the main road running right through them. No matter what the future of the tea market generally may be, we truly believe that the Nuwara Eliya Estates Company will be one of the most solidly and permanently successful Companies connected with tea either here or in India—paying, it may be, not phenomenal dividends, but a steady good rate for a long series of years to come—indeed as long as a tea tree produces profitably anywhere in the island.

It only remains for us now to place on record an authentic statement of the Company's Estates purchased up to date with their names, cultivated and total acreage as follows:—

	Tea.	Heavy Forest-land available for Tea.	Forest Reserve and Patana.	Total Acres.
Park ..	237	—	12	249
Concordia ..	180	—	8	188
Pedro ..	305	45	24	374
Portswood ..	300	{ 70 50 good patana	92	512
Lover's Leap ..	138	5	7	150
Kenmare ..	170	30	32	232
Naseby ..	100	—	13	113
	1,430	200	188	1,818
8 years' lease of Fairyland and Hazelwood ..	90	—	20	110
	1,520	200	208	1,928

Besides those for the superintendents there are excellent residential bungalows on Pedro and Portswood. Brick-making is carried on very profitably on the patana swamps of three of the estates. There are a few bazaars and there is demand for many more on the miles of Government road running through the properties. The total purchase price including the leases amounts to £129,800. We learn that last year's yield from the whole of the tea in full bearing was 460 lb. tea per acre which is a yield far above the average of the Island. The called up capital of the Company is £115,000 in ordinary shares and £23,000 of 6 per cent debentures and provides for opening up the reserve land and furnishing the factories to take in the increased crops expected. The Company is hopeful of obtaining a stock exchange quotation which would add greatly to the value of the shares as an investment. Nonpareil in West Haputale purchased with Pedro, we may mention, is to be handed over to another Company—so that the Nuwara Eliya Tea Estates Company will be true to its name. Long may it maintain the reputation of Ceylon for fine, delicate high-priced teas always so much in demand.

THE COCCIDÆ OF CEYLON.

BY E. ERNEST GREEN, F.E.S.

We have received a prospectus of the above-named work, which is described as follows:—

A Descriptive Catalogue of all the Species of Scale Insects at present recognised in Ceylon, including several New Genera and numerous New Species, illustrated by about 120 plates, chromolithographed in the finest style by P. W. M. Trap

of Leiden, from drawings made by the Author direct from nature.

To be published in Four Parts, each containing Thirty Coloured Plates and about Sixty Pages of Letterpress (octavo).

The subscription price for the complete work is Five Pounds (£5), payable in advance, in one sum, or by 4 instalments of £1 5s each.

From a specimen plate, and page of letterpress, issued with this prospectus, we judge that it will be a work of much value as well as interest, Mr. Green being a careful observer and a facile artist. With the prospectus is circulated the following letter:—

To Messrs. Dulau & Co.—Having been informed that you are contemplating the publication of a work on *The Coccidæ of Ceylon*, by Mr. E. E. Green, we desire to point out that what is known of the distribution of this cosmopolitan group justifies the belief that many of the new species from Ceylon described by Mr. Green will prove, as inquiry advances, to be world-wide. The literature connected with this important group of insects is at present of a very scattered and fragmentary nature, and the creatures are not easily recognised from descriptions.

Having regard to this—to the economic interest of Mr. Green's investigation—to the fact that wherever possible he has recorded the leading stages in the life-history of the creatures, and that in all cases his delineations and descriptions are from materials studied in life—we have much pleasure in recommending the work to the consideration of subscribers, believing that a treatise like this, in which a great variety of forms will be figured with very numerous details, will be of great assistance to gardners and to naturalists generally, and of considerable value to those engaged in economic entomology or in the management of plantations in any part of the world, as well as to systematic entomologists and morphologists.

R. McLachlan, F.R.S.; R. Meldola, F.R.S., P.E.S.; Newstead, F.E.S.; D. Sharp, M.D., F.R.S.; C. Swinhoe, B.A., F.E.S.; Walsingham, M.A., LL.D., F.R.S.; G. B. Howes, Sec. L.S.

London, Dec. 1895.

From a private letter of Mr. Green's to us we venture to extract as follows:—

I have received most kind encouragement from some of the leading English Entomologists to whom I have submitted my drawings and notes. A few of them were good enough to form themselves into a committee to support and push the publication of the work. With this view they have allowed me to circulate the letter which I enclose with the prospectus. They also very kindly applied for a grant from the British Association at its meeting at Ipswich in September last; but earlier and more important claims absorbed the funds at their disposal. Another application is to be made at the next session this year.

My work will consist of a natural history of all the scale insects (coccidæ) of Ceylon; describing and figuring not only those species that have made themselves conspicuous as specially injurious insects, but every member of the family—many of them at present of no economic importance, though under special circumstances liable at any time to increase and multiply as suddenly as did the "green scale-bug" on coffee.

It is interesting to note how widely distributed many of these insects are. My list will include some species that have been recorded from America, Europe, India, Japan, Australia and New Zealand. In walking through the plant houses at Kew last week I noticed two species—attacking Bamboo and Kitul Palm (*Caryota urens*) respectively—which are identical with species found on the same plants in Ceylon. To show how easily scale insects may be imported from one country to another I may mention that I have found upon Tasmanian apples sold in Colombo living specimens of the "mussel-shaped scale" (*Mytilaspis pomorum*). And more recently, upon oranges brought in a village shop in England, I have found living and breeding specimens of an important American pest (*Parlatoria pergandii*).

The demand for specialized work of this kind is so limited and the cost of prod ction so great that I am compelled to put a high price upon the book. But when you take into consideration the fact that it will contain between 120 and 150 chromolithographed plates the cost will not appear excessi e. I am bringing out an edition of 250 copies only; but I am warned that I cannot h pe to dispose of more than half that number. My publishers estimate the total cost of production at £1,000; so I am bound to drop money over the business unless I receive assistance from the Ceylon Government.

We certainly hope that such assistance will be given by our Government; and we think the Planters' Association might also give a grant in aid of Mr. Green's work, which cannot fail to be of use to the Planters of Ceylon.

TEA IN RUSSIA.

You will be interested in the following quotation of a paragraph appearing in the leading journal. The subject is one with which we may expect Mr. Rogivue will feel much concern, as it is evidently in contemplation to extend the cultivation of tea in Russia on a large scale. It may be concluded from the information given that Russia is desirous of making herself independent of any foreign supplies of tea. We do not recollect to have heard if the expedition which is said to have studied the subject of tea culture abroad included Ceylon among the countries visited. It seems going rather far afield to have studied the system of tea planting pursued in California, where the enterprise cannot but be as yet in its infancy.

Tea Culture in the Trans-Caucasus.—The Consular report on the agriculture of the district of Batum, just issued, contains some interesting remarks concerning the cultivation of tea along the south-eastern corner of the Black Sea littoral. The experiments made during the last few years appear to have disclosed certain conditions which promise a great future for the industry. The soil, more especially in the hilly country round Batum, and the climate are said to be eminently suitable. A number of proprietors have acquired land for planting, among them the Imperial Domains Department, which has in addition sent a special expedition of inquiry to tea-growing countries. This expedition has already completed its tour through India, China, and Japan. In China it procured seeds and plants and machinery, as well as staying an entire month in a village near Shanghai to study the preparation of tea. In Japan, likewise, the expedition collected samples of tea plants and seedlings; and it is intended to engage Japanese labourers. Some of the members of the expedition are studying the American system of culture near San Francisco. The report concludes this part of its observations with the remark that, if tea is ever cultivated in the Trans-Caucasus in quantities which would enable Russia to profitably compete with China and other countries for the supply of her home markets, the bulk of such tea would have to be grown inthe district of Batum.—*London Cor.*

TEA IN AMERICA.

New York, Dec. 25, 1895.

It has been a very slow week with tea dealers. The market is unchanged in any particular. Buyers have the advantage on everything but Formosas. No auction sale this week, which emphasises the dull condition of the market.—*American Grocer* Dec. 25.

PLANTING AND PRODUCE.

A TRADE VIEW OF TEA IN 1895.—In the course of its review of the tea trade the *Grocer* says: "In taking a brief view of the history of the tea trade for the past year (1895), it cannot be considered to have been either a profitable or satisfactory one for the trade generally. Total consumption however, has been good, and shows an increase of nearly 4,000,000 lb. Duty payments for home consumption have increased about 8,000,000 lb. while exports have fallen off owing to Russia and the Continent having imported much more China tea direct. Had it not been for the high rates ruling for the first half of the year for Indians and Ceylons, our deliveries would have been much heavier, as the deliveries of Indian tea during that period fell off 3,000,000 lb. Since the commencement of the new season and lower prices, our deliveries of Indian teas are on a par with last year, while Ceylon teas have increased 3,000,000lb. China teas for the year show a small increase in the deliveries, and would have been much greater had not the exports fallen off. We may take it, however, that home consumption of China tea has increased owing to the dearness of Indians and Ceylons at one part of the year, and not because the public taste is coming back to it out of choice, unfortunately. It has been a more or less falling market all through the year, and the losses to the dealers on their Indian stock were very severe in the spring and summer months. The general trade have found it a trying and difficult market, with only one short-lived spurt in common grades in the autumn to help them out of stale stock. Trade, however, has been good since August, and now that we have every prospect of a low range of prices for some months to come we trust dealers will have bettor times in the new year. Owing to the absence of any Russian demand this season, importers had to force off their dearly-bought Monings in October and November; the result has been a drop on opening rates of 3d per lb. on teas up to 9d, and 4d to 7d per lb. on the best. China exports are expected to be about 8,000,000 lb. less than last season, so that we shall not have too much tea from that quarter; if the present low range of value brings in an export demand, which is more than probable in the new year, we are likely to run very short, and there may be some nice profits going for those who have been bold enough to buy in the panic. An export from India, however, of 125,000,000 lb. is more than we want, and if this estimate is confirmed the price of common teas ought to keep very low. On the other hand, no common teas are coming from China, and a large quantity of the lower grades of Ceylon are being shipped direct to the colonies, &c. Low prices of Indians and Ceylons also attract Continental buyers, and other markets may be found to absorb the otherwise alarming surplus of supplies. Ceylon imports and deliveries for the year keep very evenly balanced, each year showing continued increases which even high rates cannot stop, whereas Indian tea is immediately affected by a high market for common grades. Figures look healthy, and we shall commence the new year with about the same stock as 1895. Prices are on a very safe level, trade is improving, and we may confidently expect that dealers will have a more prosperous new year.'

INDIAN TEA IN 1895.—The consumption for the first six months of the year fell off 4,000,000 lb. on account of the high prices ruling for common grades, but no doubt this loss will be partly recovered by the end of the year, owing to the fact that of late the value of Indian tea has been much better to the consumer than Ceylon tea, and it is being used more freely in consequence. The total consumption for the season 1894-95 was 114¾ million pounds, or say 1,000,000 lb. less than 1893-94, while the import for the season was 115,000,000 lb. or 1,000 000 lb. more. The export of Indian tea from London to other countries is just under 4,000,000 lb. or some half a million more than in 1894. There was a very fair business done for the first half of 1895, and owing to the scarcity of common tea, prices opened high for this class, or, say, a quotation of 7¼d to 7½d per lb. which strengthened for the first two or three months, but afterwards gradually fell away in May and June. The weight of the supplies was in medium to fine grades, owing to the crop having been a very good one, and prices dropped very considerably. Dealers were landed with a heavy stock of this class. Nobody wanted them, and the consequence has been serious losses to holders, who could only get out of their holdings by degrees, the liquidation of which took them well into the new season's, and almost any price had to be accepted from those who were willing to relieve them of their stock. Quality fell off towards the end of the season, and finest being scarce, were well competed for at firm prices right up to the end. It is very unlucky that the new crop of 1895-96 has turned out a very poor one, as the low prices ruling in May to July for good medium to fine old season's made it almost impossible to get offers for similar grades of the new crop within 3d to 4d per lb. of the Calcutta cost on arrival. The first sales of new teas were held on June 10, and opened slightly over the previous season. Quality, however, was so poor that there was a very dragging market, with drooping prices until September 9, when an improvement in demand and prices for common grades—and, in fact, for all good liquoring teas—raised values very materially. Unluckily the improvement in value of common grades only lasted a month a telegram from Calcutta being received on October 9th with the news of a probable export of 124,000,000 lb for the season. An increased export of 8,000,000 lb could only mean a glut of common tea, and heavy auctions for the rest of the year have reduced the quotations of Pekoe Souchongs to 5¼d and fine and medium Pekoes to 6d to 7½d (the latter are said to have never been so cheap), and these rates are drving them freely into consumption. We have already received about 8,000,000 lb more of the new crop, but if the revised estimate of 123,000, lb is confirmed, the stock next year will be greatly increased, as the deliveries for the year still show a falling off from 1894. Prices of common grades will doubtless still tend downwards, as the surplus consists of this class; deliveries, however, will probably increase materially, and show up well against the first six months of 1895, when prices ruled 2d over present rates for common to medium kinds. Good medium to fine Pekoes and broken Pekoes from 9d to 1s 3d improved almost imperceptibly for the last three months of the year, the improvement amounting to 2d and 3d per lb, as compared with the lowest point; finest grades from 1s 6d up have also been in small supply, and have brought good prices, quality considered. The outlook is not a happy one, bearing in mind the estimated crop of 123,000,000 lb and probable increased supplies from Ceylon; low prices may certainly increase our deliveries to, say 118 or 120 million pounds next year, but even then we shall end the season with a much larger stock than we need.

CEYLON TEA.—This most popular branch of the trade continues to expand, and is the last to feel the effects of high prices or poorness of crop. If the island could turn out the quantity, it is thought that its deliveries would soon take precedence of Indian tea. In 1894 we delivered 7½ million lb. more than in 1893, and this year the increase amounts to over 4,000,000, or actually more than we have imported. The increase has been in the last half of the year, or, say, over 3,000,000lb more than our imports from June 1st. The bulk of this year's supplies have been very poor in flavour, and quite lacking the Ceylon smack—mostly bakey or half cured; but as they are consumed almost as soon as they arrive, and certain people must have them, however poor in comparison with other kinds, losses on bad stock are not often very serious, A notable feature has been the low rates that have ruled for common to good broken pekoes throughout the year, and two or three times they actually got down to the same price as ordinary leaf teas. Often the breaks of pekoe souchong have been very small on account of colonial buyers taking them in Colombo, Fair to good pekoes have relatively fetched high prices,

the demand always being so strong by the blenders, an also for the Continent. Really good and fine liquoring teas have been very scarce throughout, and competition was so keen from them that prices have ruled very high, more particularly for the Pekoes and Pekoe Souchongs; their value, however, is so good that no other class of tea can compete with them for blending purposes. The market opened high in January with a quotation of 7½d for Pekoe Souchong, and soon rose to 8d to 8½d, with Pekoes at 9d to 10½d; but no change in Broken Pekoes at 10d to 1s These prices only lasted a few weeks, and rates gradually eased off until the end of March, when we had quotations of 6¾d for Pekoe Souchong, 7d to 7½d for Pekoes, and 8½d to 9½d for good broken Pekoes. The market then took a turn; demand improved, supplies came forward freely, but quality fell off. From Mid-June to Mid-July the crop was very common, and quotations were at their lowest—viz., 5½d for Pekoe Souchong, 5¾d to 6½d for Pekoes, and plenty of Broken Pekoes at 6½d to 7½d. Quality and trade soon began to improve—common slightly, but better grades very materially. In September the real rise commenced, and by the middle of October sweet common leaf was carried up to 7d, or say a rise of 1½d from the lowest point. Fair to good liquoring Pekoes were also very strongly competed for at a rise of over 2d per lb. while fairly good liquoring Broken Pekoes were up 2d to 3d per lb. It is difficult to estimate the rise in really good and fine liquoring teas, but it was well sustained until the end of the year; common or ordinary Pekoe Souchongs fell quite 1d to 1½d per lb. during November and December owing to the better value offering in Indian growths. The supply of these kinds was not excessive, however, or the fall would have been more severe, as the trade devoted all their attention to the wonderful value offering in Indian kinds. In noticing the rise quoted in September and October, the improvement in quality must, however, be allowed for. The long prices that really fine pekoe souchongs, pekoes, and leafy broken pekoes have realised is principally to be accounted for by the strong competition for export and their general scarceness. It is most noteworthy that the export of Ceylon tea for the year is over 7,000,000lb, or say an increase of 2,000,000lb. over 1894, so that really the home trade has only increased about 2,000,000lb. for the year. Lower prices for the common and fair grades have stimulated consumption during the last six months, and deliveries are likely to increase still more as there seems no reason why we should have any material rise in the new year. The weather in Ceylon has been favourable, and increased supplies are expected.

THE PROFITS ON COFFEE.—One cause of the popularity of tea is the fact that the wholesale and retail dealer in it is able to make a fair profit out of it. With coffee it is not so. The sale of coffee has been as unprofitable to the home dealers during the past year as it was in several preceeding ones; and interest in this favourite beverage of the breakfast-table has flagged so much that many grocers have ceased to push its sale and promote its consumption with the same energy that they did in bygone days, when quotations for the unroasted berry as imported were from 20s to 30s per cwt lower than they are now. This is mainly owing to the circumstance that the coffee which pays so handsomely to grow consists principally of common sorts, such as Brazil, that is consumed less in Great Britain than in other countries; whilst fancy kinds, which are strongest in request here, being by far the scarcest of any that are produced, fetch prices so extremely high as to virtually preclude the possibility of securing a reasonable scale of profits in preparing and disposing of them to British consumers.—*H. & C. Mail*, Jan. 10.

MARKET FOR TEA SHARES.

THURSDAY EVENING, Jan. 9.

THE YEAR 1895.—In referring to the new issues of the year we omitted in our review to mention £17,500 fresh capital issued by the Jhanzie Company, which was readily subscribed for at £6 15s per £5 share, or at 1¾ premium.

Business has been somewhat interfered with both by the Christmas holiday time, and also latterly by the unsettled state of the stock and money markets, resulting from the so-called South African scare, but nevertheless a steady investment business has been in progress.

CEYLON SHARES.—There is very little business in progress in most of these shares, but the great divergence of view as to the price between buyers and sellers rather prevents business.

DEBENTURES.—Some Eastern Assam 5½ per cent are said to have changed hands at a small premium Upper Assam Company's "C" Debentures are being asked for at or about par.—*H. and C. Mail*, Jan. 10

TRAVANCORE PLANTERS' ASSOCIATION.

Minutes of proceedings of a general meeting held at the Club, Trivandrum, on Wednesday, 15th January, at noon.

Present:—J. S. Valentine, W. Marshall, J. Stewart, J. B. Cook, A. D. Adams, (D. Cameron, visitor); D. G. Cameron, and R. Ross, Hon. Secretary.

Notice calling meeting having been read, it was proposed by J. S. VALENTINE and seconded by J. STEWART that Mr. Cameron take the chair.

Secretary's report having been read, Mr. Ross was again elected Secretary.

1. Proposed by J. S. VALENTINE and seconded by D. G. CAMERON:—"That those members who have not paid the extra donation of R10 asked for last year be again appealed to do so."

2. Proposed by W. MARSHALL, seconded by J. B. COOK:—"That subscriptions be raised from R15 to R20 per annum in order to meet expenditure."

3. Proposed by J. S. VALENTINE, seconded by W. MARSHALL:—"That a vote of thanks be conveyed Government for granting extensions of estates within the reserved forest area and that a copy of this resolution be forwarded to the Dewan."

4. Proposed by J. S. VALENTINE, seconded by A. D. ADAMS:—"That Government be urged to sanction expenditures on bridges on Bonaccord and Braemore cart-roads, as well as other applications still before Government."

With a vote of thanks to the Chairman, the meeting terminated. R. ROSS, Hon. Secy.

(Signed) D. G. CAMERON, Chairman.

CEYLON CACAO AND JAMAICA-TRINIDAD CACAO.—Referring to the comparative analyses of Ceylon, Jamaica, and Trinidad cacao published in our issue of 27th November last, with an accompanying letter from Mr. John Hughes of London, that gentleman now writes:—"Perhaps you can obtain other analyses of Ceylon cacao and publish them side by side with these, as I daresay planters and merchants would be interested with the results. The chief difference between Ceylon cacao and that of Jamaica and Trinidad appears to be that it contains more fibre and less starch compounds, though in soluble, extractive, and flavouring constituents the Ceylon specimen is decidedly superior. No doubt the character of the season affects the particular quality of the cacao as is the case with tea." We shall gladly publish any analyses sent to us.

Correspondence.

To the Editor.

CEYLON TEA IN AMERICA.

CHANCE FOR A CEYLON ROOM AT PHILADELPHIA MUSEUM.

SHOULD CEYLON WORK WITH INDIA OR SEPARATELY.

San Francisco, California, W.S.A., Dec. 14, 1895.

MY DEAR "OBSERVER,"—I did not intend again addressing you until *next year*, but the following letter received by Mr. Bierach, contains news so important to Ceylon's interests here, that I make no apology for sending you a copy; I hope the "Committee of 30" and general planting community will grasp the magnificent opportunity for such a grand *free* advertisement of Ceylon's products, especially as Philadelphia is a great commercial centre, and the letter was quite spontaneous.—[Letter of Dec. 5 to Mr. Bierach, as given in his letter below.—ED. *T.A.*]

The above letter speaks for itself, and I need only remark, that Mr. Bierach does not care to avail himself of the handsome offer referred to in the latter portion of the letter. He wishes *Ceylon* to benefit here, and not merely his own private brands of tea: his remarks are as follows:—"Ceylon can have a fine show here, I can, I am sure, *arrange for a separate Ceylon Room*, if Ceylon will only appreciate the opportunity, cost will be so trifling." The funds at your disposal will soon tell you the heavy cost of advertising in America; and such chances as the above should in my opinion be snapped up at once. The Book Pamphlet of Plan and Purpose sent me, relative to the above Museum, I must retain, but doubtless you will receive one, and can quote therefrom, it is interesting, especially chap. 4, "Bureau of Information." Leading Ceylon papers, directories, and books should be kept on file.

It appears to me that Mr. Bierach had the "pull" at Philadelphia. Where would Ceylon have been at that most important show, but for him, without a cent of support either from available funds? Why were none of the Planters' Association tea pamphlets even sent him for distribution? I think it would be good for Ceylon if your worthy Delegate (who is a rattling good business man) were to avail himself of Bierach's services. India is not in it (is it a question of supplies being stopped?); and besides Ceylon *must go by herself* as her teas are wanted in preference to those of India. *Don't mistake this point.*

So it seems S. Elwood May is again *disorganized!* Still we will probably hear shortly of his *organizing* something or other connected with Ceylon tea: this is I think a great pity, for obvious reasons.

Mr. Beling (one of the Burghers who remained in the country after the World's Fair) is now no longer connected with the Ceylon Importing Co. of Davenport, Iowa. These Johnnies seems to be all dropping out of it. Beling was a superior fellow, and I imagine a good business man.

I was glad to learn some time ago that the proceeds of the grant of tea voted to Mr. J. R. Foster were secured to the "30 Committee" and refunded them. Messrs. Castle Bros., who held the bills of lading and had a claim with others, against that gentleman, were *somewhat* surprised when I told them the final results of the transaction; they had previously informed me "that they would first pay themselves and *then* remit back to Ceylon any balance there might remain after satisfying their and their friend's claims. Thus has the wily Yankee (and Jews at that) been foiled.

I regret to learn that Mr. Bierach has been obliged to let the Wilmington Pure Food show go by, without a Ceylon Court, as he desires to concentrate all his efforts on a good showing at Washington next month. This is a pity, but he cannot be expected to run shows all over the place for the benefit of Ceylon without any support; and it is unfortunate his experience, and the "pull" he evidently has with Pure Food people, should be lost to Ceylon.

Now, Mr. Editor, I will conclude,, and wish you all in Ceylon good luck in 1896.—Yours truly,

T. A. C.

15th Dec. 1895 (Sunday).

P.S.—On taking the above down town yesterday afternoon to post, I found your *Overland* of date Nov. 7th, containing an interesting letter from your worthy Delegate which in some points surprises me. Truly advertising *is* expensive; and your Delegate will be all the more able to appreciate the telling amount of *free* advertising Mr. Bierach is able to get for Ceylon, without more cost *to him* than his valuable time, pen, ink, and paper; and not a cent of cost to Ceylon. I also received a few of the Association pamphlets which will be given by me to the leading grocery stores here, the largest of which, with its four magnificent establishments, continues its Ceylon Tea Demonstrations, by serving free cups daily. This being holiday time is the best season of the year. The tea is *good* and the brew perfect. I instructed the lady in charge, got small teapots used (one for each guest), a time-glass for her guidance, &c., &c. nice biscuits are served also. The teas used are the "Bee" Brands of R. V. Webster's, and they are very well liked. to the big show intended at Philadelphia did not come off; a great pity. £700 sterling $3,500) seems a large sum for a 3 weeks show; but, as Wm. Mc.K says, "Philadelphia is a great centre;" and everyone should be thankful that Bierach stepped into the gap. I believe £400 stg. and some natives was all he asked for the Atlanta Exposition which runs *for over 4 months;* but that is ancient history now, unfortunately for Ceylon. I sincerely hope the same mistake will not be made about Canada.

Are you in Ceylon aware that the British Association (for the promotion of science) meets next year at Montreal, Canada?" I presume this city was chosen on account of its Exposition.

It was very unfortunate your Delegate was not in America to push Ceylon at Philadelphia. How is it that even if India (why *must* Ceylon wait on India in these matters?) did not have the £350 stg. available as her share, Ceylon did not go right ahead, and make a good show by herself. Would such a course not have met with the approval of 9 out of every 10 men in Ceylon. Is it not their expressed wish that Ceylon stand on her own feet and not be dragged down by India, who is now merely hanging on to Ceylons' coat-tails, metaphorically."

Bierach's application for support at Philadelphia is referred by your Delegate "to Mr. Blechynden, to whom I have left everything in connection with the Philadelphia show." "Blechynden has the staff, booth &c." What staff? A few negros I believe, one of whom is occasionally dressed up as an "Indian Princess"!!! This won't do for Ceylon; it savours too much of the "fake" dodge, and besides Mr. Blechynden's applications were refused by the Philadelphia authorities. Why? Doubtless Mr. Blechynden "likes having sole charge of the running," but how does Ceylon like it? Is it to *Ceylon's* best interests that an *Indian* man should have "sole charge of the running"? I think not. Fortunately he had sole charge of running nothing.

I am sorry to see that what your worthy Delegate says about poor teas being sent over here bears out what I wrote some time ago on the same subject. I had hoped this fatal mistake might only be local.

I hope Washington will be well pushed by Wm. McK, and the application made by Bierach be favourably received. Don't you think America is right about the pamphlets? She has 70,000,000 people to feed; and if she can produce *pamphlets*, guns and chewing-gum, *to be used in America*, is she not quite justified in protecting her own industry and thereby employing, and paying wages to, *her own people*? Free trade is all very well in the abstract; but in the concrete it don't always work; and a mild protection is not a bad thing. I imagine the British farmer would like to try it, and get a paying price for his cattle, grain and other crops.

I gave the same answer, fortunately, to Mr. Perry, as you have given to Henry Cottam, not to go to Ceylon unless he had money to invest, in which latter case he might go to many a worse place.

T. A. C.

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132 East 23d, Street, New York, Dec. 19th, 1895.

DEAR SIR,—While at Philadelphia a conducting a Ceylon Court in the interest of the Ceylon Tea Industry, at the food exposition, I was invited to a private view of the commercial museum (not yet open to the public), an institution that will be bound to benefit all countries represented by exhibits. *The plan is a good one.* The accompanying pamphlet will explain fully its purpose, and which I should be glad to have you *publish* with your comments. On the subject I have addressed a letter to the worthy Chairman of the "Thirty Committee," A Melville White, Esq., and the annexed letters will explain themselves and show Ceylon opportunities of which I sincerely hope, advantage will be taken.

The Philadelphia Museums, Philadelphia, Dec. 5th, 1895,

Mr. S. Bierach, 132 East 23d St., New York City.

Dear Sir,—I take the liberty to write you, through the suggestion of Mr. W. B. Smith. Allow me to state that I was extremly sorry not to have been in the Museum when you called some days since; I should take great pleasure in putting on exhibition here a complete collection of Ceylon Teas. When we are open we shall have great numbers of commercial men visiting our place and I feel it will be quite advantageous and as much in your interest as ours to make the collection a fine one of large samples including all varities on the sceintific side, I should like every different kind that you can furnish me with, regardless of its saleability. You can then give us the information with reforence to those kinds you are particularly pushing and we will send people to you. *If you* desire to arrange a handsome case with your *own name* upon it you are privileged to do so. In such event we should like to have the samples in sufficient quantity that they might be tried.—Very truly yours, (Signed) W. P. WILSON, Sec. and Director.

Philadelphia Museum, Philadelphia 12, 16, 95.

Friend Bierach,—We send you via mail lot of books as requested, and I am instructed by Prof. Wilson to say we will be pleased to grant you a *special room* for show of Coylon products and hope to make it a very interesting one. We will *furnish all cases and fix up* and will make a special endeavor to have with your assistance a show worthy of your efforts.

You will understand that we have some very large rooms and some not so big; and if you can arrange to get all the products of the island we can with your assistance make a fine display. Hope to see you soon.—Respectfully, (Signed). W. B. SMITH.

This museum of the products of the world is not intended for an Exhibition of a month, or six; *but to be permanent*; for this reason it is all the *more* desirable. The planters and commercial firms of Ceylon should not be slow in taking advantage of this offer.

I sincerely trust the response will be *a hearty one.* And that Ceylon will put *its best foot forward* by making a creditable representation at the Commercia Museum of Philadelphia.—I am, yours faithfully,

S. BIERACH.

Copy. 132 East 23D Street, New York, Dec. 16th, 1895.

Wm. Mackenzie, Esq.,

Ceylon Tea Representative, London, England.

Dear Sir,—With this it gives me great pleasure to hand you a copy of a letter that I have addressed to your worthy Chairman. A Melville White, Esq. The letter will explain itself. The object I am sure will meet with your approval; and I fully trust that on close investigation you will endorse the enterprise and that Ceylon will make a suitable display at the Philadelphia Museum.

I trust that you received the copies of the "Household News," "Grocery World," and the photo of the Ceylon Court at the Philadelphia, food show with my letter covering same. Not to lose any time I shall forward this by the next outgoing mail, trusting that I shall have your favorable reply covering the Washington Exposition.

With best wishes for your health and with compliments of the season.—I am, dear sir, yours faithfully,

S. BIERACH.

Copy

132 East 23rd Street. New York, Dec. 16th, 1895.

A. Melville White Esq., Chairman Planters' Association and "Thirty Committee," Kandy, Ceylon.

Dear Sir,—While at the Philadelphia pure food exposition on the invitation of W. B. Smith, Esq., of that city I paid a visit (Private View) to the commercial Museum not yet open to the public. This Museum is under Municipal patronage.

When complete in scope it will be beneficial to all countries represented. The idea is to show the products of the world and I am of the opinion its importance will be appreciated by all that are connected and represented by exhibits.

I promised that I would interest myself and communicate with your Association, Committee and deligate showing the importance of the enterprise for a display of Ceylon Products, particularly tea.

Your Committee and the Chamber of Commerce should take this opportunity into favorable consideration and make a representation of the products of your beautiful island. *Space and display costs nothing* and will do an immeasurable good, in fact, a standing advertisement for your products.

I know that if the proper commercial exhibits be sent I could arrange with the director, Prof. Wilson, or a separate Ceylon room thus making your advertisement standing out more prominently.

The cost for the proper exhibits would be but nominal, transportation moderate, and if your committee so desire I could install and arrange your exhibit personally and that would not add so very much to the cost.

Requirements for the exhibit:—"Golden Tips" bro. or. pekoe, or. pekoe, pekoe, pekoe sou. souchong, "Silver Tips," and hyson high and low-grown; coffee, cinnamon, cardamoms, cacao-beans, cloves, nutmegs, mace, desicated coconut, plumbago, animal and vegetable fibers, oils, coconuts in husks, &c. &c. &c.

Estates and firms could be invited to contribute for this purpose and in making the display have their products shown under estate or firm names so as to receive all possible benifit. Name of estate, temperature, rain-fall, elevation &c., to be given with tea exhibits.

The exhibit practically would cost your Committee nothing; the cost of transportation and arranging being so trifling in comparison to the benefits to be derived therefrom. The opportunity is a good one that should not be lost but promptly acted upon.

The Mayor of New York has inspected the Commercial Museum plan of the Municipality of Philadelphia and reported that a similar institution should be started in this city.

Trusting that your Committee, Association and the Ceylon Chamber of Commerce will appreciate the importance of making a good Show and taking advantage of this splendid opportunity. I await your favourable and early reply. With my best compliments to yourself, your Association and Committee.—I am, dear sir. yours faithfully,

S. BIERACH.

MR. BELING AND THE CEYLON IMPORTING COMPANY, IOWA.

Colombo, Jan. 24.

SIR,—My attention was called to the para in Mr Cockburn's letter in the *Observer* of the 23rd instant in which it is stated that Mr. L. Beling has severed his connection with the Ceylon Importing Company, Iowa. I have good reason to believe that this statement is incorrect. I would not care to contradict the statement if not that it might work prejudicially to the interests of the Company, and it is not likely from the information I have recently

had that any such thing had taken place. From a letter dated the 10th December, I learnt that the business, the headquarters of which is now at New York, was more full of promise and, having attained this much, that no efforts would be spared to make it a life success.

Unless the unexpected had happened between the 10th December and the 11th, the date of Mr. Cockburn's letter, the news of which could not have reached San Francisco so rapidly, the Ceylon Importing Company of Davenport and New York was at that date and is now I fully believe under the same management.

Mr. W. Mackenzie, the Ceylon Delegate, in one of his earliest letters, spoke of the Company as "perhaps the best friends the planters had in America;" and since then he has doubtless had ample opportunity of watching the work they are doing in pushing Ceylon products, especially tea. Mr. J. H. Renton when in New York recently had called at the offices of the Company on several occasions; and as a business man and one actively interested in the pushing of Ceylon tea in new markets he would no doubt be able to speak authoritatively as to the work my brother is doing in the interest of Ceylon.

I hope the C. I. C. will long continue to push Ceylon tea without clamouring for extraordinary aid, magnifying their own efforts or crying down that of others in the same direction, nor attempt to interfere with the work of the responsible and duly constituted authority who could use his discretion and experience gained on the spot to push the Ceylon products to the best advantage.—Yours faithfully,

H. P. BELING.

ST. HELIERS TEA COMPANY.

Colombo, Jan. 30th.

DEAR SIR,—It may be of some interest to you and also to some of your readers to know that at a meeting of Directors of St. Heliers Tea Company held today it was resolved to declare an *interim* dividend, for the six months ending 31st Dec. last, of 10 per cent, which has been paid.—We remain, yours faithfully,

BOIS BROTHERS & CO.,
Agents and Secretaries.

COCA, PARA RUBBER, SABAI GRASS COFFEE, AND CAFFEINE.

Jan. 7th, 1896.

SIR,—After receiving the *Tropical Agriculturist* 2nd Dec. 1895 I digested the contents, and would like to remark as follows:—

Products of Bolivia (page 377).—Very little is said about the *Erythroxylon Coca*. I am following up this subject because I know that there is much to be learnt still. I had the satisfaction of knowing that I had introduced a valuable drug into England when I brought in the coca leaf and pushed it before the notice of medical men. None of the alkaloid makers supported me until Mr. Merck took it up. I have found out that the large-leafed variety from Bolivia is the most valuable to grow. Further, in testing the coca leaf grown in Java, there is hardly any crystallizable alkaloid; the substance that comes from the Java leaf is more like a glucoside. I had sent to me from India some coca leaf which had been passed through a tea desiccator and its appearance when it arrived here was that of a curled-up, dry leaf. It was pronounced by the authorities of the Pharmaceutical Society to be valueless; nevertheless I sent it to the works where they are most advanced in the manufacture of caffeine and they pronounced it very fine and said they would be glad to take any quantity that could be supplied, and, instead of the price of the Java coca leaf being worth about 3d., this would be worth about 1s. The point to be noticed after reading these remarks is that this coca was grown at a high elevation in India, comparatively speaking, and the information that I have given to my friends in the report was: "Go up to Assam and try the coca leaf there (the large-leafed variety), dry the whole leaf like tea, pack it tight into bales and send it over. I believe it will then be worth 1s 6d to 1s 8d per lb. here for the extraction of the alkaloid." In testing trees, either for the leaf or for the berry in the instance of coffee, it is most misleading to take the first fruit or foliage from a *young* tree. We see this specially with coffee, because as the seed dries it "shrivels" off a young tree.

PARA RUBBER.—I think it will turn out a valuable enterprise to all those who are planting this variety of rubber in Ceylon. The trees can be planted a good distance apart, close to any moist or wet ground or on the sides of streams; it will be a great pity if they are put so close together that they crowd one another.

SABAI GRASS FOR PAPER.—I should be very glad if I could obtain some of the seed of this grass and also a specimen of the paper which is made from it. I am writing to the only clue that I can find in the article on page 401, viz., to the Deccan Paper Mill Co. for samples of their paper, because it will be very interesting if this paper will stand chemical treatment as well as the Manilla paper does; this Manilla paper I use in large quantities, perfectly free from any sizing and it is 40 inches wide. I should be very glad to see the Sabai grass if it came at the same price or cheaper and was equally strong as the Manilla. This Manilla paper makes a beautiful water-proof material, which there is a great demand for.

COFFEE.—I have lately been thrown considerably into company with some of the large coffee brokers and dealers, and they have informed me of the sums of money which they have collected to start places where pure coffee will be given, because when one asks for a cup of coffee one rarely gets it in this country, and hardly ever in Germany. If the hotels, restaurants and eating-houses were once compelled to give pure coffee when a cup of coffee was asked for, people would commence to know what the flavour of coffee was. They next would ask for coffee to be made strong, and the quantity of coffee that comes to this country would be quite inadequate to supply the demand. There are exceptional places in London and a series of establishments where pure, first-class coffee is to be obtained, and these are well-known and frequented by those who know what the flavour of a good cup of coffee is. The Liberian coffee which comes to England is sold at a good price because it has great strength and flavour and this goes to the north of England and the manufacturing places, but there is not more than 20 per cent to 30 per cent of coffee in the mixtures that are sold. It is a great question if the legislature could not compel restaurants to supply coffee when it is asked for.

You may like to hear that the CAFFEINE industry has gone on increasing and large quantities of tea are consumed. A much larger plant has been erected by the manufacturers so as to cope with the demand. All this industry has been brought into England since 1888. To prove how pernicious the action of some of the dock companies has been of allowing the Germans to have the British made tea sweepings from British warehouses to denature and send to Germany to be made into caffeine, to compete against British industry. An American firm has engaged a German to start a similar set of machinery in London, and to bring pressure to bear to obtain tea sweepings, so that the tea can be denatured and sent to America to be worked up and so compete against British industry.

In conclusion I am glad to say that some of these docks and tea wharves who formerly allowed the tea sweepings to go to Germany have repented and are now acting most honorably in sending the whole supply to the English houses.—Yours truly,

TH. CHRISTY.

EDERAPOLLA TEA COMPANY OF CEYLON, LIMITED.

We have received a copy of the prospectus of this Company which has been formed with a capital of £50,000 in 5,000 shares of £10 each, to purchase from Messrs. Bett and Watt, Ederapolla estate, and from Mr. MacMartin, Ardross estate, both properties being situated in the Kelani Valley District, Ceylon. The Directors are Messrs. James Bett, Ederapolla estate, Ceylon (Vendor); J. M. MacMartin, Ardross estate, Ceylon (Vendor); G. W. Paine, Chairman of the Kelani Valley Tea Association, Limited; R. Porter, Maskeliya, Ceylon, Managing Director of the Kelani Valley Tea Association, Limited. Managing Director in Ceylon—Mr. Arthur Watt, Ederapolla estate, Ceylon (Vendor). Bankers—National Bank of India, Limited, 47 Threadneedle Street, E.C. Solicitors—Messrs. Murray, Hutchins, Stirling & Murray, 11 Birchin Lane, E.C. Auditors—Messrs. Cape & Dalgleish, 8 Old Jewry, E.C. Secretaries and Office—Messrs. Lyall, Anderson & Co., 16 Philpot Lane, E.C. The estates have been reported on and valued by Mr. R. Porter, Managing Director of the Kelani Valley Tea Association, Limited, and the Company have acquired the properties at the values put upon them by Mr. Porter. The Vendors have agreed to accept payment as follows:—£12,660 in fully-paid shares, £6,340 in cash—£19,000.

PLANTING IN THE STRAITS SETTLEMENTS.

From the Kuala Kangsar Monthly Report for Nov. 1895, published in the *Perak Government Gazette* of Jan. 17, we take the following:—

On the 20th instant, in company with the Acting District Engineer, I went to Padang Rengas, and there met the State Engineer; we then proceeded to Sungei Ati, a small river that takes its rise in the Hijau range: this river has washed down thousands of tons of earth from the side of the hill on which the Waterloo coffee estate is situated. This earth has covered the land in the valley to a depth of one or two feet and destroyed a great many valuable kampongs. There are several hundreds of acres of bendang land below this which will eventually be destroyed unless something is done, and that shortly. The State Engineer has decided to run one or more sections of levels across the upper end of the valley and then put in a succession of dams and turn this part of the valley, which is now worthless, into a sort of catch pit and by this means keep the falling earth from further encroaching upon the lower land. The sooner this is done the better. The original cause of this damage was owing to the fact that the jungle on Waterloo, which at one time, by means of its roots, held the earth together, has been cleared away and the hill being very steep has been washed down by every successive rain.

7. The kampongs that have by this means been totally destroyed belong to the ordinary Malay *raiots* who have been ruined by this. I think that these people should undoubtedly be compensated for the loss they have suffered. The attention of the Government was drawn to this early in the current year but up to the present nothing has been done.

Over 1,400 pikuls of coffee have been shipped from the Kamuning Estate for the year ending on the 31st October. Only 2½ per cent of this was number two coffee. There are altogether 399 acres under cultivation, 265 of which are in bearing. This gives over five pikuls to the acre, which at the present price means over $ 200 per acre. There are thousands of acres of land equally suitable for coffee to the north of this estate, and with this land opened up by the Kamuning-Lassag road, which will be about 10 miles in length, access to this land will be easy. When the railway reaches Chumor it will only be a matter of 10 miles of cartage, instead of as formerly, 35 miles to Taiping and then trans-shipping into the railway and again into the Penang boats.

The owners of the Gapis Estate are pushing on with their clearing and planting very fast. The young coconuts on this estate are looking very well and they have planted already about 70 acres in coffee.

I have had two applications for coffee land this month, from a party of Malays and a Chinaman respectively. Two Chinese towkays have also been inquiring about land for planting coffee. In one instance the would be planter is willing, I understand, to plant up as much as 1,000 acres if he can get suitable land and a good man to manage for him. If these men are prepared to put the money they make out of tin mining into planting, I think it will be a most excellent thing for the State as well as the men themselves. What is wanted now more than anything is a few experienced planters. who are willing to select and plant up and manage the the land for them. I think it only requires one or two start, to shew the Chinese what can be done with European management, and many more will follow suit. I would suggest that special and very favourable terms be offered to the first three or four Chinese who are prepared to take up, and plant a certain area in coffee within a certain time. Let them either have the land at a reduced quit-rent free until the plants are in bearing. I personally do not think the Government can do too much to induce the Chinese to take to planting and I feel sure that the future of the State will greatly benefit if this is achieved.

The *Selangor Journal* has the following:—

Not only for coffee planting is there a demand for land in Kuala Selangor. We hear that an application has been received for a very extensive concession for pepper and gambier; also that a gentleman, lately visiting the district, expressed a desire to take up a thousand acres for coco-nut cultivation. This latter application is for land subject to tidal influence, which renders the area applied for useless for any other purpose. It is to be hoped that the application, at any rate, will be granted, for in that event the concessionaire has stated his willingness to import the necessary plant and machinery for the extraction of oil and the working of fibre, and start an industry that would bring wealth to the natives and to the Government. A high authority once informed us that our "tin won't last for ever," and that we were "going on the right lines in developing our agricultural resources." Therefore, let the development be encouraged.

A general meeting of members of the Selangor Planters' Association will be held in the Reading Room of the Selangor Club to on Jan. 11th.

THE CEYLON LAND AND PRODUCE COMPANY, LIMITED.

ANNUAL REPORT.

Your Directors beg to submit the annexed Pr and Loss Account and Balance sheet for the y ending 30th June, 1895, duly audited.

The amount at credit of Profit and Loss Account is £8,836 15 6, which, with the sum of £358 0 2 brought forward from last year, leaves £9,194 15 8 to be dealt with.

On July 18th last, an Interim Dividend of 7½ per cent. on the Ordinary Shares and 3 per cent. on the Preference Shares was paid, and your Directors now propose to pay on the 21st day of January, 1896, the balance of the fixed Cumulative Dividend on the Preference Shares (3 per cent.) making 6 per cent. for the year, and 7½ per cent. on the ordinary shares making 15 per cent. for the year, and in addition a bonus of 5 per cent on the ordinary shares—all free of Income Tax. It is also proposed to transfer £2,000 from Profit and Loss Account to a Reserve Fund, and carry forward the balance of £1,307 15s. 8d., subject to the Directors' remuneration for the year under review, to be fixed at the general meeting, and to the payment of Income Tax, &c.

The result of the operations during the past season has been very satisfactory, the largest crop of Cocoa yet secured from the Company's estate having been marketed, whilst the realized net price of tea shewed an improvement as compared with the previous period.

TEA.—The year 1895 opened with rather high prices for common teas, and moderate rates for medium and fine. This position was about maintained for the first few months, but subsequently, as supplies increased, a lower range was established until July, when, owing to better teas coming forward, and some recovery in the value of medium and fine, the monthly average again commenced to rise. On the whole the quality of the crop has been a fair average one, and, as showing the increase in the trade, it is interesting to note that about 950,000 packages passed the hammer in the public sale rooms during the last 12 months, bringing in an average price for the whole of 8⅝d. per lb. or the same as was obtained for 876,300 packages in 1894, and comparing with 9½d lb. for 834,000 packages in 1893, while the London Bonded Stock on December 31st was about on a par with that of 1894, so that the increase of nearly 6 million lb. has been practically absorbed. The export trade from London to the Continents of Europe and, America is a growing one, and your Directors are pleased to be able to state that orders from buyers abroad now have considerable influence on the prices obtained in public sale for the classes of tea deemed suitable for their requirements. The total exported from London from January 1st to November 30th in the past three years is:—

1895	1894	1893
6,535,211 lb.	4,795,312 lb.	3,744,751 lb.

COCOA.—The market for this article has been disappointing, and prices have been lower than those of 1894. The position now looks more hopeful, although your Directors cannot at present look for a renewal of the record prices of past years.

COFFEE.—The prices obtained during the year have been satisfactory, but inferior to those of 1894. The highest price paid during the year for *Ceylon Liberian*, viz. 90/6, was obtained for a parcel from North Matale Estate. According to news from the producing countries a lower range of values must be looked for in 1896.

The following Statement shows the acreage of the Company's Properties at date:—

Name of Estate.	Tea.	Cocoa, Coffee & Coco-nuts.	Forest, Grass, Chana, &c.	Total Acre-age.
Alloowiharie ..	107	410	153	670
Andangodde ..	120¾	—	55¼	176
Fetteresso ..	405	—	33	438
New Peradeniya..	386½	17½	54½	458½
North Matale ..	226	822	459	1,577
Owella ..	27	74½	77¾	179
Riekerton ..	500	—	96	596
Strathisla ..	—	229½	111½	341
Forest ..	—	—	430	430
	1.842¼	1,553¼	1,470	4,865½

At the request of the Board, and some of the largest shareholders, your Chairman and Managing Director, Mr. James Wilson, left this country on a visit to Ceylon in Jan. last year. He has visited each estate several times, and, speaking generally, found the Company's properties doing well. He reports that he is especially pleased with Strathisla, and that Tea bids fair to be a success where planted, both on Strathisla and Owella.

LITIGATION WITH FORMER AGENTS.

Your Directors have been obliged to embark upon litigation with their late Ceylon agents, and at the moment proceedings are in an advanced stage.

The crop prospects for season 1895-96 are, so far favourable, the estimates of tea being in excess of last year's intake.

Your Directors beg to report that they have amply provided for any possible reduction of the book values of the Company's properties in Ceylon, over £20,000 having been set aside from Revenue for this purpose during the past six years.

The mortgage over the North Matale, etc., Estates, which originally stood at £15,000, has been cancelled, and the relative deeds are now in the Company's possession; your Directors, therefore, wish to again point out that the redemption of this mortgage increases substantially the value of the Debenture holders' security.

Your Directors wish to place on record their appreciation of the services so far rendered to the Company by the Chairman and Managing Director.

THE UDUGAMA TEA AND TIMBER COMPANY, LIMITED.

The annual general meeting of this Company was held at the Company's offices, 20, Baillie Street, Colombo, at 12 noon on Jany. 28.

Present:—Messrs. Chas. P. Hayley (Chairman); H. Creasy and J. N. Campbell, Directors. Messrs. H. Unwin, E. Benham, C. J. C. Conran, by his attorney Chas. P. Hayley; L. M. Torin, by his attorney J. N. Campbell; and J. A. McGillivray representing the secretaries.

The minutes of the last general meeting having been read and confirmed, Mr. Unwin, attorney for Rev. W. E. Rowlands, moved the adoption of the report, which was seconded by Mr. E. Benham.

Mr. Unwin proposed and Mr. Benham econded Mr. Creasy's re-election as a Director in place of Mr. H. Creasy resigned.

Auditor.—It was proposed by Mr. Chas. P. Hayley, and seconded by Mr. E. Benham, that Mr. Hercules J. Scott be appointed auditor for the current year.

The Chairman and managing Director, Mr. Chas. P. Hayley, stated that notwithstanding the loss incurred during the past year he had every hope that the Company will pay this year.

COCONUT LAND IN THE KURUNEGALA DISTRICT.

"Welikela," the coconut land of the late David Perera, who planted it on the "lease system" which was generally condemned in a series of letters written to the *Observer* some years ago, was put up for sale on Saturday last, when the highest bid obtained was R21,000 for a block of 67 acres. There were various causes which led to this. Firstly, half-improved value has not yet been paid for the entire land which is about 95 acres. Secondly, the grant is not forthcoming. Thirdly, the land is under mortgage to a man in Kandy, and David Perera the planter and mortgagee who has since died, by his last will has provided that the mortgagee should have the refusal of the purchase. All thees conspired against the sale taking place, and the land had consequently to be bought. There is the lesson, however, learnt that whereas the official assessor, the Ratemahatmaya of the district valued the land at R75 per acre, a slight show of competition has proved that this is quite wrong, and raises the value to R260 per acre. Coconut land in this District is becoming more and more valuable and is attarcting the attention of capitalists. Mr. Henry Daniels, the Superintendent of Minor Roads, Colombo, was up here some time ago to value Kohana estate, 1,000 acres of coconut; not for sale but to settle some dispute between the owners, de Silva brothers of Moratuwa. Mr. W. H. Wright came on a commission to value a land of de Mels, on the Dambulla Road near the Dedurnoya. It is close upon a hundred acres in extent, and De Mels want R600 per acre. In the direction of Wellowa 6 miles from Kuru. on the road to Trineo. extensive coconut plantations are coming up. In a few more years there will be hardly any land available for planting, within a radius of twelve miles from the town. European capitalists are reconnoitring the country and with the examples set by Messrs. Finlay, Muir & Co., Melville White and others, we shall sooner or later have a colony of Europeans among our coconut growers.—*Cor.*

TEA PLANTING IN RUSSIA.

A report on tea growing in the district of Batoum, Russia, has been prepared by Mr. Consul Stevens, from which it appears that great hopes are entertained by the Russian authorities that tea cultivation on a large scale can be successfully carried on in the district. The report says that experiments made in the growing of this article during the past few years, though hitherto on a somewhat limited scale, have brought to light certain conditions which promise a great future for the cultivation of tea in the Batoum district, and it is foreshadowed that before many years have elapsed such culture will become one of the most important industries of that part of Russia. The results obtained clearly demonstrate that the soil found in the hilly country around Batoum is specially adapted for raising the tea plant, since it contains silicious earth, ochreous clay, lime, magnesia, humidity, organic matter, chalk, oxidised iron, and phosphoric acid in the required quantities, besides which the average annual rain and snow falls, the moisture of the atmosphere, and the prevailing winds render the climate specially suitable for successful tea growing.

In addition to Messrs. Solovtzoff and Popoff, the Imperial Domains Department, Mr. Sibiriakoff, Mr. Viasemsky, and one or two other proprietors, have acquired land in and about Chakva and Mahindjauri, both of which places are within a distance of eight miles from Batoum, for the purpose of laying out tea plantations; and the Imperial Domains Department, which has sent a special expedition to India, Ceylon, China, and other tea-growing countries to make a study of tea cultivation, has recently arrived at an agreement with Mr. Solovtzoff, the pioneer tea planter of Transcaucasia, to plant out fifty-four acres for the department. It may be presume that other capitalists will shortly follow their example and profit by the experience already gained by their predecessors, although for the present one or two of the latter are jealous of their respective undertakings, and insist upon the greatest secrecy being maintained as to their methods of cultivation. It is, nevertheless, a foregone conclusion that if tea is ever cultivated in Transcaucasia in quantities which would enable that country to profitably compete with China and other nations for the supply of her home markets, the bulk of such tea would have to be grown in the district of Batoum. Hitherto Mr. Popoff is the only person who has undertaken to carry out the experimental trials in the cultivation of tea on a somewhat large scale, and his three plantations at Chakva, Salibauri, and Kaprishun are perfect models as far as the laying out of the grounds, roads on the estates, buildings for the employés and labourers, and other such-like arrangements are concerned, but only the few persons who are immediately connected with his plantations know anything about his methods of cultivating the tea, for his estates are practically a sealed book to all outsiders. According to reports only a small proportion of the seedlings which he planted out this season have taken, whereas on Mr. Solovtzoff's plantations all the young plants are doing well.

The expedition sent out by the Department of Imperial Domains has by now completed its tour through India, China, and Japan. It spent a whole month in a Chinese village near Shanghai, at which place the preparation of tea was studied; and tea seeds and plants and machinery for the tea plantations near Batoum were procured. In Japan the expedition collected some valuable information respecting the soil and climatic conditions of the tea-growing districts in that country. One or two members of the expedition have recently proceeded to San Francisco to study the American system of culture, and the other members are to remain a short time longer in Japan for the purpose of engaging Japanese labourers and obtaining samples of Japanese tea plants and seedlings. It is reported that experimental trials in the cultivation of tea are also to be made in Kahetia during the autumn of this year.

Apart from its reference to tea cultivation, Mr. Stevens's report throws light on the efforts which are being made by the Russian Government to improve the agricultural condition of Transcaucasia. It is admitted at the outset that the general condition of the district is "deplorable," and it is this fact which was induced the authorities to adopt special measures with a view to raising the social condition of the peasantry. The promotion of technical education is one of the means to this end; persons experienced in the scientific cultivation of the soil are continually being sent to the Batoum district from St. Petersburg and other educational centres to instruct the rural population, and sure though slow progress is being made. A scheme for encouraging the manufacture of agricultural machinery in the country itself by the extension of credit to would-be implement makers has been started by the Ministry of Finance, and practical mechanics instructed in the handling and repairing of machinery and implements are to be sent to Transcaucasia as itinerant teachers. Depôts of agricultural implements and machinery, and also of seeds, are to be opened by the Government. Increased grants have been made for the current year for the encouragement of meteorological observations, silkworm cultivation; the destruction of pernicious animals or insects, irrigation, and the establishment of experimental stations, model farms, primary agricultural schools, and agricultural societies. Already the cotton-spinning mills of Moscow are receiving supplies of cotton grown in Transcaucasia as well as Central Asia. The mildness and humidity of the climate and extensive tracts of available free lands are said to be favourable to the industry, and additional efforts are being made to induce the peasantry to experiment by the planting of Crown lands with cotton and the distribution of seed. Nearly 250,000 acres have also been planted with vines, and already upwards of 36,000,000 gallons of wine are produced in an average year; and specialists are engaged in combating the peculiar diseases of the vine, including the phylloxera, oïdium, and mildew. Tobacco is also being successfully grown. Great efforts are being made to extend sericiculture in the neighbourhood of Tiflis, and as the industry suffered severely last year through the importation of inferior eggs from Turkey, the central silkworm establishment at Tiflis is taking steps to supply the peasantry at moderate prices with eggs which have been selected after microscopical examination, and which, therefore, can be guaranteed as free from disease. Dairy farming on a large scale is being promoted. In regard to the cultivation of grain extremely primitive methods are still in vogue, and as the peasants do not possess the means of doing their ploughing independently, a system of co-operative ploughing has come into existence.—*H. and. C. Mail*, Jan. 10.

TEA FOR THE NATIVES.—The *Indian Planters' Gazette* says:—

In the interesting note on the cultivation of Indian tea Mr. J. C. O'Conor while showing that Indian tea is exported mainly to the United Kingdom—to the extent of about 96 per cent. of the average production—comments on the strong contrast between the quantities consumed in the United Kingdom, and India, remarking that the Indian consumption to a substantial extent is due to the European population, more than one million pounds of it being taken by the Commissariat Department for the British Army. That Indian tea *is* growing in favour with the natives (especially the Mahommedans), as he declares, is a well-known fact. Here, in the capital, the beverage is commonly sold to the masses by petty shop-keepers and itinerant *chahwallahs*; but tea-drinking does not seem to be so provalent here as in Bombay, where an enterprising colony of Irani Parsees have pitched their tents and practically created what is now a thriving business in the tea shop line drawing extensive patronage from the Parsee, Mahommedan, Arab, Persian, Goanese and Surti communities—and even to some extent from the Hindoo community. There is an opening for similar onterenterprise here, we think.

DRUG ERPORT.

(From the *Chemist and Druggist.*)

42 Cannon Street, E C., Jan. 9.

ANNATTO SEED.—Still in fair demand, but slightly easier. Common East Indian sold today at 1½d, fair quality at 2¾d per lb.

CALUMBA is unchanged. Good washed was bought in at 45s per cwt. while for fair rather dark mixed a bid of 8s was refused, 10s being the price at which it was bought in.

COCA-LEAVES.—Quiet. Ten bales were bought in today—Huanoco character at 1s 6d, broken pale at 1s 2d per lb.

CUTTLEFISH.—Rather slow of sale. Prices remain very low. Three cases of dull dark bone sold at today's auctions at 2d per lb., while for a 6-cask parcel from the Canary Islands, small to medium, barely fair, a bid of 2¼d per lb. was rejected 2½d per lb. being the price

GAMBOGE.—Firmly held, several good bids being refused. Of 26 packages only six sold at 11*l*. per cwt. for fair broken pipe partly blocky, at 9*l*. 5s for damp partly blocky pickings, partly ricey in fracture, and at 8*l* 15s for ordinary dark pipe of ricey fracture and dull colour Good bright picked pipe was bought in at 12*l* per cwt.

NUX VOMICA remains very low in price, although holders seem disposed to ask a little more money. A parcel of 120 packages small grey fair seed from Cochin was offered today at 7s 6d per cwt. but there were no bids above 4s 6d per cwt. Another lot, from Bombay, was bought in at 6s 6d per cwt.

OILS, (ESSENTIAL).—Extremely quiet. At today's auctions only 3 cases Nutmeg oil (1893 import) sold without reserve at 1½d to 1¼d per oz. Another lot was bought in at 3d per oz. The following oils were among those bought in. 13 cases Cinnamon at 6d to 9d per oz.; 14 packages Citronella at 1s 10d to 2s 2d (for one lot 1s 9d. per lb. was refused).

PATCHOULI.—Nine bales very stalky leaves were bought in at 4d per lb.

PICKING WITH A LOCAL APPLICATION.

In the Ceylon rainfall returns, the largest record for 1894 seems to be that taken at Padupola which aggregated 232·71 inches. I believe some 7 inches is supposed to represent the rainfall in Sind, but Murikandy (North-Central road, Ceylon) does not come far behind in 1893, with its 11·2 inches! Ganot mentions that the heaviest rainfall at any place on the globe is on the Khasia Hills in Bengal, where it is 600 in., of which 500 fall in 7 months. As regards England, the driest place is said to be Lincoln with a mean fall of 20 in., the wettest, Stye in Cumberland, with 165 inches.

In reply to an enquiry made by the Governor of Barbadoes as to what efforts had been made to plant economic plants other than sugar-cane, the Secretary to the Barbadoes Agricultural Society in his reply writes as follows:—During the present year the subject of Tobacco and Grape cultivation was brought prominently forward with the result that a Tobacco Process Association was formed: later the Society, in furtherance of the scheme, were able to distribute Tobacco Seed, Indigo Seed and Linseed, to some forty planters: all of whom have promised to plant small trial plots ranging from one quarter of an acre to one acre, of one or other of these seeds; but more especially Tobacco, and to report results in due course.

The following from *The Australian Tropiculturist* refers to coloured labour in New South Wales:—In the northern districts of New South Wales there is a great outcry about "an influx of coloured labour." The classes represented are Hindoos, Afghans, Cingalese, and Chinese, who are, it is said, "ousting white labourers from their legitimate sphere." Some of these aliens have even bought land, and are trying to establish sugar growing on an extensive scale. When employed by settlers the coloured folks work for less per week than the whites. Many of the Chinese have settled down as fruit-growers on leased ground. Their plan is to lease an orchard which is in a good state, and in a few years when it is worked out the owners are left lamenting, and "John" is missing.

The *Barbadoes Agricultural Gazette* writes strongly on the subject of "petty thefts" (prædial thefts) and the leniency of the law in dealing with them. Such condonation and such paltry fines as are usually imposed are not fair, it says to our struggling proprietors overburdened as they are already with a thousand expenses. Many estates are compelled to employ two watchmen during the ripening season: hundreds of able-bodied men are thus withdrawn from productive labour annually and paid to play hide and seek with wily thieves, who, if occasionally caught, can readily afford to pay the one shilling fine which magistrates usually exact, or without much inconvenience endure imprisonment for a few days. This kind of punishment unfortunately casting no slur on the individual. We protest against this leniency which demoralizes the people forters evil habits, is an absolute wrong done to proprietors and the struggling industries &c., &c.

For one thing we are better off as regards magistrates here!

Liquorice (an extract from the taproot of *Glycyrrhiza glabra*) is annually imported to England to the extent of 600 tons: Damascus exports £100,000 worth. It is also imported from the West Indies and Brazil.

Nelson's *Home Comforts* gives the following amusing "black man's recipe" for boiling rice:—Wash him well, much wash in cold water, rice flour make him stick, water boil all ready, very wash. Shove him in; rice can't burn, water shake him too much. Boil quarter of an hour or little more. Put one rice in thumb and finger; if all rub away him quite done. Put rice in colander, hot water run away. Pour cup of cold water on him, put back in saucepan, keep him covered near the fire, then rice all ready. Eat him up."

PLANTING IN THE MATALE NORTH-EAST DISTRICT.

A planter correspondent referring to a notice of tea land for sale in the Matale North-East district says:—

It looks like as if owners of old abandoned coffee lands and forest too high for coffee in the olden days, had begun to realize that now is the time to sell seeing that tea is doing so well in this district. When they know that three of the smaller places last year gave 700, 600 and 500 lb. of made tea per acre and that the yield of the district has steadily been increasing, they are wise to try and sell their old properties, and new-comers will be most heartily welcomed.

Though it is an outlying district and far from the madding crowd, it is after all within the pale of civilization. It has its post office, dispensary and a very able genial doctor who is anxiously looking forward to the commencement of the new dispensary with six or eight beds it is hoped for patients, as the existing buildings are in anything but good repair. The site most suitable for the new buildings is the old tennis court on Calloogahatenne estate, being on the road side in a well sheltered hollow and a plentiful supply of good water.

Taking the post office as the centre, the district is seven miles only from the beef shop in Rattota, An enterprising firm opened there recently, and as they have made application to Government for a license to sell liquor by the bottle they hope to save their customers from sending further for their supplies.

Several estates do their own transporting to and from Matale and transport rice and produce for their neighbours with the regularity of transport agency firms specially established for the purpose. At present the chief difficulty is not being able to get good straw at a reasonable price. R2 per 100 bundles —and very small ones they are—have been paid during the past six weeks, and if the paddy field cultivators don't lower their prices when the new crop is harvested, Australia will have to be applied for compressed straw or feeding stuffs for cattle. Why this scarcity? Only once before during the past seven years has straw been over one rupee per 100 bundels, but that was before the paddy tax was abolished.

VARIOUS PLANTING NOTES.

COMPARATIVE VALUE OF RICE, WHEAT AND POTATO AS NUTRIENTS.—A correspondent writes: —"I shall thank you to let me know whether rice, wheat, or potato, is more nourishing?" The order in nutrient value is (1) wheat, (2) rice, (3) potato. The last contains 75 per cent of water.

A CINCHONA MANUFACTORY IN JAVA.—It appears, from a prospectus received by the *Java Bode*, that a quinine factory is really to be built in Bandoeng. The ground has already been acquired, and permission obtained to build. The work is to be done by Mr. H. J. van Prehn. C.S.; and when the manufactory, estimated at a capacity of 80,000 kilograms of quinine, is ready, it will be taken over for *f*250,000 (its cost is not stated) by an anonymous company floated with a capital of *f*500,000, of which *f*300,000 will be first issued. The cost of manufacturing is estimated at *f*5 for a kilogram of quinine; and, as the planters will be charged *f*6, there will be a profit of *f*1.

THERE IS A SMALL COFFEE PLANTATION IN the Matang District, which is said to be an ideal one, and the trees are the healthiest in the State and bearing superbly. It is the property of a Malay. On the Jebong Estate, too, some of the plants, planted in March last, are said to be already in blossom. It has been said that coffee planting on low land is a mistake. and that the trees soon wither away. The *Perak Pioneer* is given to understand that the idea is erroneous, and that so me trees planted in the Magistrate's compound at Parit Buntar, some fifteen years ago, are still in splendid condition and bearing.—*M. Mail*, Jan. 25.

COFFEE IN INDIA.—The *Times of India*, referring to the statistics of coffee cultivation which we quoted yesterday, remarked :—"The industry can hardly be said to be a very flourishing one, for despite a considerable increase in acreage in 1894, the yield was only a little over thirty-five and a-quarter million pounds, or hardly more than that of the preceding year." Nothing could be more fallacious than this, says the *Madras Mail*, for not only is the industry more stable and prosperous now than it ever has been before, but we very much doubt whether during any one quinquennium since coffee was first taken in hand by Europeans in Southern India fifty-five years ago, the average annual profits calculated over thewhole area of actual cultivation have been so great as during the past five years.

THE VANILLA GENUS.—At a meeting of the Linnean Society held on Dec. 19, Mr. R. A. Rolfe gave an abstract of a paper entitled 'A Revision of the Genus Vanilla,' in which some 50 species were enumerated 17 of which were new, though five of them had been previously confused with older forms. The plants in this genus were described as tall forest climbers, some of them leafless, found almost throughout the tropics, though generally somewhat local in their distribution. Of the species described, 29 were American, 11 Asiatic, and 10 African. Six of the American species have aromatic fruits, and three of them are well-known in commerce, though only one of them, *Vanilla planifolia* (often confused with other species), is largely cultivated as an economic plant. Mr. Rolfe gave an account of the morphology and mode of fertilization of the genus, its allinities and geographical distribution, and an enumeration of the species with descriptions As indicating a still imperfect knowledge of the genus, he remarked that it was even now uncertain to what species the peruvian plant with aromatic fruits belonged which was noticed by Humboldt more than eighty years ago. The paper was illustrated by a series of carefully made drawings.—*Athenæum*, Jan. 11.

THE SEASON IN MADRAS.—On Tuesday the Board of Revenue telegraphed to the Government of India for the week ending the 25th instant as follows:—"No rain except scattered showers in parts of Vizagapatam. Irrigation supplies are adequate except in the Southern districts. Some sowings are still made in places. Standing crops are generally fair. Harvests continue with generally a fair outturn. Pasture and fodder are generally sufficient Cattle is in good condition. Prices are falling in the Southern districts, stationary elsewhere."—*M. Mail*, Jan. 30.

THE WYNAAD.—Commenting on the article we had recently, the *Madras Mail* says:—We have steadily advocated the cultivation of tea here, and some two years ago we took occasion to point out that there was no need for Ceylon to fear any extensions in the Wynaad, as, comparatively speaking, it was but a small district. With reference to Mr. William Taylor's remark regarding the *jât* of tea, it may be mentioned that during the last two or three years only good pedigree seed has been used. There are now in the Wynaad some 800 acres of young tea, from one to three years old, all of which are planted up with bushes of an irreproachable *jât*.

SOCIETY OF ARTS (INDIAN SECTION).—Mr. George Curzon, M.P., was to preside at the opening meeting of the Indian Section of the Society of Arts on Jan. 16, when Colonel R. G. Woodthorpe, C.B., lately on special duty in the Mekong Valley, was to read a paper on "The Shan Hills: their Peoples and Products." The paper was to be illustrated by lantern views of sketches made on the spot by Colonel Woodthorpe. Other papers will be read during the Session as follows:—Sir James Lyall, G.C.I.E., on "Punjab Irrigation"; Mr. J. H. Glass, C.I.E., Chief Engineer, Public Works Department, Bengal, on "The Great Landslip at Gohna in Gurhwal, and the measures adopted to prevent serious loss of life"; Mr. Walter R. Lawrence, I.C.S., C.I.E., on "Kashmir: its People and its Products"; Mr. C. Tripp (formerly of Sumatra) on "The Tobacco Industry of India and the Far East": Mr. G. W. Christison, on "Tea Planting in the Darjeeling"; and Captain Charles Rolleston on "The Deserted City of Hampi." Sir Charles Crosthwaite, who was Lieut.-Governor of the North-West Provinces when the Gohna disaster occurred, will preside at the reading of Mr. Glass's paper.

THE "INDIAN FORESTER" for December 1895 has the following contents:—I. Original Articles and Translations—Recruitment of Officers for the Indian Forest Service, by C.G.R. Pruning Spicormic Branches of Oak, by 'H H' with translation; Is the Lantana a Friend or an Enemy?; II. Correspondence—Dominated Trees, letter from C. P.. Fisher; Flowering of Strobilanthes, letter from J. L. L McG; The word 'Siwalik' letters, from E. Mc A. M. and M. Rama Rao; How to Utilize Papilionaceous Plants, letter from H-H. The Patiala Western Siwaliks, letter from G S. Hart; III. Official Papers and Intelligence—The Reorganization of the Provincial and Imperial Services; Alteration of the Forest School Rules: D'Arcy's Working Plans'. IV. Reviews A Manual of Forestry Vol. III. Forest Management by Dr. Schlich, C.I.E.; The 'Forester,' an American Illustrated Forestry Magazine; Forest Administration in Jeypore, in 1894; Forest Administration in Jodhpore, in 1894-95. VI. Extracts, Notes and Queries—Manufacture of Camphor in Formosa; Planting Shifting Sands on the Sea-Coast; Holigarna and its Blistering Principles; The Indian Forest Department and Cooper's Hill. VII. Timber and Produce Trade—Churchill and Sim's Circular, November 1895; Market Rates for Produce; Average Selling Rates in N.W.-P. in November 1895. VIII. Extracts from Official Gazettes. Appendix Series—Agricultural Ledger—*Acacia Catechu*.

THE THIRTY COMMITTEE.

Minutes of proceedings of a meeting of the "Thirty Committe" held at Kandy on Wednesday, the 29th January 1896, at half past twelve o'clock in the afternoon.

Present :—Messrs. A. Melville White (Chairman); A. Philip (Secretary); J. N. Campbell; W.D. Gibbon; F. G. A. Lace; R. S. Duff Tytler; F. M. Mackwood; A. W. S. Sackville; A. E. Wright; Alex. F. Souter.

The notice calling the meeting was read.

The minutes of proceedings of a meeting of the "Thirty Committee" held at Kandy on Saturday, the 16th November 1895, were submitted for confirmation. Resolved :—"That they be, and they are hereby confirmed."

Read draft report.

Resolved :—"That the draft report, as submitted, be adopted, subject to additions by the Chairman as indicated by the Committee in the matter of Exports to foreign countries &c."

Submitted letters from the Treasurer of the Colony and from the National Bank of India, Limited.

Read letter from the Secretary, The Ceylon Association in London, in regard to proposed Tea Analyses.

Read letter from Messrs. Gow, Wilson & Stanton enclosing copy of a paragraph which appeared in the "Financial News," and of their reply.

Read letter from Mr. S. Elwood May.

Read letter from Messrs. W. Mackenzie and R. Blechynden to Mr. S. Elwood May.

Read letters from Messrs. C. K. Reid & Co. Resolved :—"That they be referred to Mr. Mackenzie.

Read letter from Mr. Edward S. Greece. Resolved: — "That the letter be acknowledged with thanks, and referred to Mr. Mackenzie."

Read letter from the Secretary the Ceylon Chamber of Commerce with letter from Messrs. Corbitt & MacLeary Company.

Read letters from Mr. S. Bierach. Resolved: —"That the Committee, while fully appreciating Mr. Bierach's services in pushing Ceylon Tea in America, and thanking him for the same feel bound to support the action of their responsible representative on the spot, to whom they fully entrusted the management of their work in America."

REPRESENTATIVE IN AMERICA.

Read letter from the Chairman dated 19th November 1895 to Government asking the approval of His Excellency the Governor to a further expenditure of £6,000 (six thousand pounds sterling) for the purpose of advertising Ceylon Tea in the United States by Mr. Mackenzie.

Read letter from the Colonial Secretary intimating that His Excellency the Lieut.-Governor has been pleased, with the advice of the Executive Council, to approve of the proposed appropriation.

Read letters from Mr. Wm. Mackenzie to Mr. White, dated respectively London, 1st November, 8th November, 10th November, 29th November, 12th December (2), 27th December 1895, 3rd January, 10th January, 1896.

Read Mr. White's letters to Mr. Mackenzie dated 19th November, 28th November, 6th December, 16th December, 1895, January 2nd, January 14th, January 25th, 1896.

Submitted Newspaper cuttings, advertisements, and other printed matter as received.

Read letter from the Manager National Bank of India Limited, enclosing letter of credit No. 33/28 in favour of Mr. Mackenzie per £2,000 sterling our rent till 31st August, 1896.

Read letter from the Manager National Bank of India, Limited enclosing letter of credit No. 34/5 in favour of Mr. Wm. Mackenzie per £2,000 current till 31st December, 1896.

Read cablegrams despatched and received.

Read letter dated 13th December, 1895 from Mr. Wm. Mackenzie to the Secretary enclosing a statement showing expenditure on behalf of the committee. Resolved :—"That the Committee hereby confirms the official and semi-official letters of the Chairman that have passed since last meeting, also cablegrams from the Secretary, and the action of the Secretary in forwarding letter of credit No. 34/5 per £2.000 sterling on the 17th January." Resolved II :—"That the Secretary do obtain from the Bank a fresh letter of credit for £2,000 being balance of £6,000 sanctioned by Government and forward same to Mr. Mackenzie." Resolved III :—"That the Chairman be authorised to obtain the approval of Government to the expenditure of a further sum of £3.000 sterling in the United States of America on the lines laid down in the letter of instructions to Mr Mackenzie dated 31st May, 1895, already approved by Governor."

SAMPLES OF TEA.

Read correspondence with Messrs Charles Mackwood & Co. regarding samples of Tea for Chicago desired by a buyer there. Resolved :—"That in further reply it be stated that the Thirty Committee regrets that the tea in question cannot be supplied as the boxes referred to were complimentary packages, the special marking of which cannot be repeated."

CEYLON TEA IN CALIFORNIA.

Read letter from the Agents of the Ceylon Tea Co. Limited transmitting a sale of 26 chests shipped per ss. "Darmstadt" with draft on the Bank of British North America, London for £54-7-8 in settlement.

CEYLON TEA IN THE TRANSVAAL.

Read letters from the Agents of the Ceylon Tea Co., Limited, advising payment of R116·89 to Mr. Souter on account claim for duty charges &c. on grant for free distribution.

CEYLON TEA IN RUSSIA.

Read letter from Messrs. John Tyndall & Co. inviting attention to the accompanying letter from Mr. Stewart M. Anstruther at present in Russia. Resolved :—"That the letter be acknowledged, and in reply that Messrs J. Tyndall & Co. be informed that any assistance granted by the Committee must take the from of advertisement of Ceylon Tea, and that Mr. Anstruther be asked to furnish the Committee with some information as to extent of his business, and his proposals in greater detail, for future consideration."

Read letter from Mr. Wm. Martin Leake advising Draft for R1314·61 equivalent of £250 at 1s 129-32d per Rupee for remittance to Mr. Rogivue of Moscow.

Read letter from the National Bank of India, Limited. Resolved :—"That Mr. Rogivue be asked to furnish the "Thirty Committee" with a memo: of the quantity of Tea that has been imported into Russia through his agency in 1894 which will be considered confidential together with full particulars as to expenditure under the grant of £1,000 (one thousand pounds sterling) now being disbursed.

CEYLON TEA IN SMYRNA.

Read letter from Mr. G. A. Marinitsch. Resolved :— "That consideration be postponed."

Laid on the table sketch abstract of the Ceylon Tea (New Markets) Fund account as from July to 31st December 1895.

The "Thirty Committee" then adjourned.

A. PHILIP, Secy. to the "Thirty Committee."

THE IMPERIAL TEA ESTATES COMPANY.

We learn that Mr. W. Megginson, acting on behalf of the Imperial Ceylon Tea Estates Company, Limited, has just concluded the purchase of St. Vigeans and Friedland estates in the Bogawantalawa district. The first consists of 185 acres all in tea in bearing, and the latter of 165 acres of which 163 acres are in tea all in bearing except about 2 or 3 acres. Each estate has its own factory fully equipped with abundant water power to drive all machinery. The price paid for these two estates is, we learn, £18,800 sterling or under £54 sterling per acre which is a very moderate price indeed for such fine properties situate in one of the most favorite districts in the island. The new issue of shares in the Company to pay for these properties has all been fully subscribed,

TEA CULTIVATION IN MAURITIUS.

(*Translated for the "Ceylon Observer" from the "Revue Agricole" for Dec. 1895.*)

The cultivation of tea in Mauritius has during the past few years extended somewhat; and in view of the results already obtained and the promises for the future it deserves in spite of the small acreage actually devoted to it, to engage attention. The quality of the product obtained and the yield of marketable tea from the whole of the surface planted are of such a nature, so far, as to encourage the creole to devote himself thereto more thoroughly, especially if he considers that there are vast tracts of land which on account of their situation and climate, are little suited for sugarcane, as experience teaches daily. On the other hand, according to a very just theory, the danger is constantly being accentuated of having only one string to our bow, of cultivating only one product; and we dangle before our own eyes the spectre of bankruptcy, asking ourselves with anguish what would become of us if, at the end of a crisis which we dread more and more, which every year increasingly preoccupies the mind, and which will issue from that formidable coalition in which all the nations of the world have united to play at the game of who shall produce the most sugar and at the cheapest rate, we were obliged to abandon our single industry and our single culture.

The agriculture, industry and commerce of a country are not transformed in one day: time is needed, and a gradual change; so that, if such an eventuality ever presented itself, we should without doubt be close on ruin. "The Mauritians," a stranger has said in writing of us, "have put all their eggs in one basket." We may add that we live in constant fear of seeing the basket on the ground. Now if, under these conditions, we have localities that easily lend themselves to another cultivation beside and even on the top of that of sugarcane, and if, passing from theory to practice, we have found it remunerative, let us engage in it seriously and do not let us allow such a splendid opportucity of augmenting our resources to pass.

This has been the case very fortunately; and since the impulse was given, since the first plantation was made, we have seen others spring up in various places. But, after all, what does it amount to! By a careful computation we shall arrive at the very utmost at three hundred acres of tea in the whole colony. This is little indeed; only it must not be forgotten that it is a cultivation which is only in its early days, dating from a few years back, and that many of the existing plantations are not even in full production, so that it has not yet been found possible to establish in a very rigorous fashion the average yield per acre, although it is very good, as we said at the commencement. The example set by the first is being increasingly followed by others, so that the future in store for tea in Mauritius seems brilliant and allows of great hopes being entertained.

In 1894 the imports of tea into Mauritius amounted to:—

344	kilos	from England
8,824	,,	from Ceylon
21,697	,,	from India
8,490	,,	from Hongkong
5,616	,,	from Singapore
10,290	,,	from China
1	,,	from France

making a total of 53,262 kilos of a value of R47,232.

On examining the figures it will be seen at once that if the local plantations do not yet suffice to supply the consumption of the country they will not long delay. At present they are all young, and often enough one finds in the same plantation trees of different ages, so that, not only is the return not yet what it should be, but there reigns a certain uncertainty even with regard to what it actually may be. Nevertheless, on the Experimental Farm of Curepipe, where Government has had about a score of acres planted, five or six of which are of older date and extend back to eight years, there has this year been produced 6,000 pounds of tea, which makes the average yield per acre work out at 300 pounds,—average yield, we say, because those plants that, being older than the others, are now in full bearing produced, per acre of cultivated surface, a quantity of marketable tea very much greater, and close on 600 pounds per acre.

Now, at 300 pounds the acre' 300 acres would produce 90,000 pounds of tea per annum: that is to say, a quantity about equal to our consumption. Thus we may legitimately hope that we shall soon no longer be indebted to India and China for this article of consumption. But, much better, the Colony might even export some; and the really superior quality of the product would seem to assure for it an easy sale; for we have not forgotten the news, communicated to the public at the time and published by ourselves, that the tea from Chamarel, tasted in London by experts, had been properly appreciated.

The yield of 300 pounds per acre is a normal one; and from what we have said above of the almost double yield from a fraction of the plantation of the Experimental Farm (the only plantation, we think, of all that exist in the Colony, which has reached the age of 7 or 8 years), the planter may reasonably reckon upon it as an average; and it is certain that with an average revenue of at least R300 the acre he can cover expenses which are not more, after the cost of the first opening has been met, than expenses of upkeep.

In India a plantation is in full bearing at the age of six years. The first plucking is made after the third year, and then prodnces from 75 to 100 pounds of made tea the acre; but the production increases rapidly from year to year, and remains at about 250 pounds when cultivation has become regular and has attained its apogee. This yield is exceeded in Natal, and even considerably in certain cases, as it may amount to 600 or 700 pounds the acre; but these last figures are exceptional, and the quantity of made tea oscillates around 300 pounds—general average of the 2,000 acres of land planted in that colony. This is likewise the average yield of the finest "gardens" in Ceylon.

The variety mostly cultivated in Mauritius is the Assam Hybrid, which combines the qualities of the "China tea" and the "Assam tea," and for which the humid climate of Curepipe and of the highlands of the Savanne and Chamarel is specially suitable. At the Experimental Farm there has also been planted the "China tea," but in small quantity, and it is intended to abandon it entirely. The plants are separated by from 3½ to 4 feet every way. The pruning is done in July-August, and the plucking commences in September-October to terminate in June. The care exercised in plucking and the precaution of putting on one side the "tips" and more or less tender leaves allow, as is known, of the preparation of teas of various qualities, which are in order of merit and of fineness *Pekoe, Pekoe Souchong, Souchong* and *Congou.* The yield in made tea is about 25 per cent in weight of the freshly gathered leaves. With regard to the preparation it lasts two days and comprises the following phases:—1st, the partial desiccation of the leaves; 2nd, the rolling; 3rd, the fermentation; and 4th, the firing. The length of the fermentation, varying according to circumstances, is about an hour and a half to two hours, which only experience teaches to fix. It is during this phase of the preparation that the perfume, due probably to a kind of oxidation, is developed and accentuated. Finally the "fired" tea is tasted and classed according to quality.

Such is as nearly as possible the actual state of the new industry in our midst. We shall try to procure more complete and circumstantial information, which we shall in turn communicate to our readers.

MARKET FOR TEA SHARES.

Tuesday Evening, Jan. 16, 1896.

Since the reopening of business after Christmas there has been a resumption of investment buying, and prices keep steady.

The *Financial Times*, in its last Friday's issue, published a leading article on Indian Tea Companies

in 1895, and makes some very pertinent remarks regarding the importance of adjusting the par values of capital to actual market values, and it quotes the case of Armstrong, Mitchell, and Co., which company has lately followed this course with great advantage to its shareholders.

FRESH ISSUES.—The directors of the British Assam Co., we learn, acting under the powers conferred on them by the "Article," have issued 323 new Ordinary shares of £10 each (£3,230). They also announce an issue of £15,000 of 6 per cent. Cumulative Preference shares of £10 each in substitution of that amount of the 6 per cent. Debentures which fall to be paid off next month.

MINCING LANE though quiet keeps very steady, with Indian Teas rather firmer at the close.

CEYLON SHARES.—C. T. P. Co. Ordinary are wanted at 24½ upwards, but holders ask 25 the Prets are inquired for but not more than 16 to possibly 16½ would be given for them.

Ceylon and Oriental Estates Ordinary shares are in inquiry, and par value might be paid for £3 paid shares.

Eastern Produce and Estates Co.'s Ordinary £5 shares are also wanted at or near 4½, with holders, however, asking more money.

Lanka Plantations are also inquire for.

New Dimbula B's are said to have changed hands as high as £17.

Oriental Estates Debentures (Six per Cents.) are being asked for, but they are not at present available.—*Home and Colonial Mail.*

THE WYNAAD PLANTERS' ASSOCIATION.

From the annual report we take the following :—

I said in my last annual report that the coming years would be most important ones in the annals of Wynaad and this prophecy is now being fulfilled. The tea industry is developing slowly but steadily. The results of the sales of the first shipments of tea have just been received and give average of 9d and 9¼d per lb., which though not so good as Assam and not so good as we were led to expect, from valuations of samples, still leaves the ample margin of at least 4d per lb. profit, which in conjunction with the fact that the yields off the young acreages have been abnormally large, should lead to the more rapid planting up of land. We have lately seen a great deal written in the papers about our Wynaad and all in praise of it with the exception of what appeared in the columns of a paper purporting to be written by planters for planters, and we may trust that this is merely the friendly rivalry of brother planters less favourably situated. At any rate the district has lately been visited by enterprising planters from Ceylon many of whom I am glad to hear are going to settle here. But I sincerely trust that the advantages of the situation will not be left entirely with them; and that the scheme so often advocated by this Association of small acreages under different proprietors with central factories may at last be put into force, and that the old residents may share with the new comers in the prosperity that is to come. Anyhow, those of us who are fortunate enough to hold reserves of land may congratulate themselves on its greatly increased value.

Arabian coffee notwithstanding the continued ravages of leaf disease continues to give handsome profits in certain parts of the district; and it remains to be seen what will result from the large acreages of Liberian which will shortly come into bearing. In conclusion, gentlemen. I beg to lay the accounts on the table and my resignation in your hands. It is with very true and genuine regret that I resign this office which I have now held off and on for ten years, and I thank you all most sincerely for the friendly support and sympathy which you have always accorded to me and without which my work would have been a toil to myself and of no avail to the district.

THE OUTLOOK FOR CITRONELLA OIL.

The present position of oil of citronella is a very strong one, especially as it is based on natural rather than artificial conditions, We reviewed the situation in our issue of July 22nd, 1895, as it then existed, and predicted higher prices, which have since been realized. The general price in single drums is about fifty cents, and dealers are buyers up to forty-five cents. In fact, some purchases have been made at this price. The present level of values would have been reached ere this had everybody interested in the article allowed the market to take its course, but some dealers had made contracts at low prices, without having entirely covered thier wants, hence they were desirous of preventing any advance until they had secured themselves against loss, it if was possible for them to do so. It is safe to say that with the price at twenty-five cents per pound, which it was a year ago, and which had been the average price for several years, dealers generally were not belivers in higher prices. Even when the price commenced to advance later on, many were loath to believe in the permanency of values. Some dealers, however, purchased liberally in Ceylon, as they were persuaded, from the information in their possession, that the advance was warranted by conditions existing at the source of supply. As the market continued its upward movement they again bougbt liberally, and subsequent events have proved the soundness of their judgment. It appeurs that there was serious damage to the grass by drought, hence a short yield was the result. There is, and it is held at high prices, and is only available for January-March or January-July shipment, at the option of the seller. The price quoted is equivalent to about fifty cents per pound, cost and freight New York. The stock in the various consuming markets is also light, and London has more than once been a buyer here since last Spring, at high prices, but the goods were not obtainable, except in one instance last May, when a small quantity was exported.

It is very evident that at twenty-five cents per pound, the Sinhalese are satisfied to produce oil. As we have stated, tbis was the average price for several years. Under it the demand increased enormously during the year from July 1st, 1894, to June 30th, 1895. Tho imports into the United Statos for the last six years were as follows:—

July 1st to June 30th	Pounds.
1889-90	174,457
1890-91	355,735
1891-92	477,623
1892-93	411,151
1893-94	274,279
1894-95	743,663

Lemongrass oil is included in theso figures, except the last year, but the imports of this variety have been light.

Consumers will doubtless continue to use oil of citronella, inasmuch as they would run considerable risk in changing the odor of their products, particularly of soaps. As a little oil goes a long way in perfuming, they will scarcely feel the enhanced cost of the oil.—*Oil, Paint and Drug Reporter*, Jan. 6.

THE NEW YORK OIL MARKET IN 1885.

COCONUT OILS.

The year was ushered in by an exceedingly light demand for both Ceylon and Cochin oils, and values denoted weakness despite tho favorable statistical situation. This was induced principally by the depression in the price of tallow and other competing articles, supplemented by the foar widely entertained that a large stock of Ceylon oil held here for advance made to a local dealer who had recently failed would be thrown upon the market. It was generally thought that until the status of this oil was definitely defined its influence would bo detrimental to the stability of prices, and, accordingly, operators became rather timid and business dragged along in a perfunctory manner, with only slight variations in quotations throughout the earlier months of the year,

The range on Ceylon the first week in January was 5¼@5⅜c., and excepting a few unimportant changes from time to time these figures represented substantially the market value during the entire year. Cochin opened at 6@6¼c., which which was sustained with considerable steadiness for several months, but about the middle of June free arrivals brought about an easier feeling, and quotations fell to 5⅝@5¾ c., and by the first of August the price for spot parcels declined to 5⅜@5½ c. The requirements of consumption having reduced the local supply of Ceylon oil quite materially, prices rebounded during the latter part of September and again reached 5⅝@5¾ c., and there remained for some time. Meanwhile the market acquired increased strength, due to an improvement in the demand, and this was greatly promoted in November, when several prominent local houses secured control of the bulk of the Ceylon oil in New York. Immediately quotations were marked up to 6 at 6⅛c., and this was the range for several weeks. December was a quiet month, and while the general situation was fairly strong, buyers were indifferent, and near the close of the year sellers receded to 5⅞ at 6c. Ceylon oil was materially strengthened in the latter part of October by the absorption of the bankrupt stock referred to above. The bankers who held it as security for a debt due by the insolvent owner, sold the oil to a syndicate of local dealers and this relieved the market of a long-standing menace. Values became firmer, and, as the arrivals had become less voluminous with the approach of Winter, the general situation presented a very favorable aspect. The year closed with Ceylon oil quotable at 5⅛ at 5¼c., and the consumption during the period under review reached a full average.—*O., P. & Drug Reporter*, Jan. 6.

TIN CHESTS FOR CEYLON TEA.

Mid-England, Dec. 18, 1895.

NEW MARKETS FOR THE WELSH TIN PLATE MAKERS.

The important proposal among the Welsh tin plate makers for seeking new markets for their product, now that the American trade is virtully lost to them, is gradually assuming a more definite form. The significant meeting of the trade, which I last week advised was intended, was held yesterday in Swansea, and it is alleged that the attendance numbered something like 70 makers. Particular emphasis was laid on the proposal that steps should be taken to encourage the movement for the packing of tea in tin chests. It was explained that the idea was that the makers should start a sort of limited liability company, and provide capital by fixing a certain contribution per mill—say a matter of £10, which for the 500 mills would realize £5,000. With this money "they could send commissioners to our colonies and other places; the could wait on the viceroys, governors and consuls, and try to get the advantages and uses of tin plates prominently put before the merchants of the various towns and cities they visited."

THE PACKING OF TEA IN TIN CHESTS

was considered by the meeting to be important, but it was not I understand thought that any demand that might be created would be sufficient of itself to put the trade in a sound position, and other new sources of use would therefore have to be looked for as well. A resolution was proposed that a commission should be appointed, several speeches being delivered in support of the suggestion, and, finally it was resolved that a committee should be elected to consider the question. The committee is an influential one, representing all the tin plate districts of South Wales. Finally, with the idea of attempting to get unanimity, every marker present was asked to pledge himself in support. and it is alleged that all replied in the affirmative, but for this statement there is nothing at present but "official" authority.

WILL THE COMMISSION SCHEME BE CARRIED OUT?

The commission proposal, so far as it is foreshadowed in the terms given above as expressed at the meeting, seems a somewhat Quixotic one, particularly as regards the class of people to be approached. Indeed, the phrasology under this head reads more like a Christmas story told to an eager throng of gaping children in merry-making attire than a serious business suggestion. I should not be surprised if the committee when they come to details will find a good deal of division among their ranks which may result in nothing being done after all. The Welsh tin plate manufacturers are historically slow to move, and exceedingly wanting in anything approaching cohesion. Still we shall see what we shall see, and meanwhile the Welsh position is being regarded by the other metalliferous industries of the country with a good deal of curiosity mingled with a lesser amount of expectation.

FURTHER INFORMATION ON TIN PLATE TEA CHESTS

is forthcoming this week in an interview which a Welsh correspondent has had with Mr. Frank Randell in reference to objections which have been raised in the grocery trade that the fact of the tin being hermetically sealed would destroy the tea. It is pointed out that if experts decide against the box being hermetically sealed the chests can be so made as to provide the required ventilation. In point of fact the tea, even in the inside lead cases of the chests now chiefly in vogue, is hermetically sealed. In his opinion such conditions of packing were a safe guarantee against mildew. It was an admitted fact that 2 per cent of the metal chests in which tea was brought over were approved of by the planters and traders, and there was no reason why, in the interest of the South Wales tin plate trade, they should not endeavour to capture the remaining 98 per cent.

GETTING HOLD OF THE CEYLON TRADE.

It is stated that an official of the government railways in Ceylon waited upon Mr. W. H. Ludford, the district manager of the Great Western railway at Llanelly a day or two ago and asked to be supplied with full particulars of the new method of tea packing. This official is reported to have said that as the industry of tea planting was so rapidly growing in Ceylon, the matter of adoption new methods of packing was of first importance, especially in view of the fact that the present wooden boxes were open to so grave an objection through being smashed in transit. "He considered, therefore, that there was a great future for metal chests."—*American Manufacturer*, Jan. 3.

MORE TEA COMPANIES.—The talk all over business places is regarding the formation of Tea Companies. We learn that several of these are to be floated shortly, and the news now comes definitely to us that two Companies are to be formed in the Kelani Valley, ere long. Negotiations are in train for the purpose of forming Lyndhurst and Mapitigama estates in Avisawella into one company. The former belongs to Mr. J. R. Bell and Miss Bell, when an acreage of 262, out which 238 are fully planted with tea, and 2 acres in cardamoms. Mapitigama is adjacent to Lyndhurst and belongs to a well-known planter upcountry. The acreage of this estate is not as large as the former and only 100 is in tea. Another estate, also in the Kelani Valley, is to be floated into a company shortly. The revenue will no doubt benefit materially by the present boom in shares, as the stamps on the documents connected with the formation of new companies must also aggregate to something handsome.—Local "Examiner," Feb. 1st.

The Best Soaps for Warm Climates are CALVERT'S TOILET SOAP (6d. Tablets) and PRICKLY-HEAT SOAP (6d. and 1s. bars), pleasantly perfumed, for Bath or Toilet containing 10 per cent. of Pure Carbolic. Very serviceable as preventives of Prickly-heat and other skin irritation. Sold at Chemists, Stores, &c.

F. C. CALVERT & CO., Manchester.

CEYLON LAND AND PRODUCE COMPANY.

GENERAL MEETING.

At the 11th annual general meeting of the shareholders of the Ceylon Land and Produce Company, Limited, held at the offices of the Company, Leadenhall House, 101, Leadenhall Street, on Friday, the 17th of January, 1896, at 2 p.m., in the absence of the Chairman, Mr. Jas. Wilson, Mr W. Keiller, of the firm of Jas. Keiller and Son, Dundee and London presided, and made the following remarks :—

RESULTS OF THE YEAR'S WORK.

I am sorry that our worthy Chairman is not with us today. It is against his wish and against his personal convenience, as you may well understand, that he has been compelled to stay in Ceylon for over a year ; but his sense of duty to the shareholders of this Company compels him to sacrifice these feelings to the common good of all of us, and I for one gladly add my feeling of appreciation of the self-denial exercised by him, and I am sure the shareholders will agree with me. Your directors are pleased to lay before you such a cheerful state of things as is depicted in the report which has as usual been sent to every shareholder, and which I presume may be taken as read. It has been our good fortune during the year under review to harvest the largest crop of cocoa that has been handled since this Company has been in existence, viz., 2,836 cwts. The season most closely approaching this record was in 1892-93, when the intake was 2,200 cwts. The very large drop in prices has, however, been a source of regret when it is remembered that in the season 1892-93 the net prices for the crop, which is practically all sold in this country, was 90s 11d, as compared with 52s 9d, which was last year's net. The drop has been most severe and perhaps is more marked when I tell you that in February, 1893, we sold cocoa Nos. 1 and 2 bulked together that grossed 130s 9d, and that during the past season equally good cocoa has been quitted at one-h lf the price. It is satisfactory, though, to add that whilst this drop eats very considerably into our profi:, it by no means wipes it out, and that at present prices a moderate crop will give us a very f.ir return. As an offset against the drop in cocoa values an increase in tea prices has to be recorded for, whilst in 93 94 we realized 6¾d, net for our teas, in 94-95 we got 7·34d. Perhaps, it will be interesting to you to listen to a comparison of figures for the past five years compiled by the Secretary :—

Year.	Rate of Ex.	Net. d.	Cents.
90—91	1/6	9·10	48·61
91—92	1 4¾	7·81	46·63
92—93	1 3	7·70	51·33
93—94	1 2½	6·77	46·68
94—95	1 1¼	7·34	55·40

In addition to the better prices obtained a greater quantity of tea was auctioned, and I may add that all our teas are sold in this market. Since June tea has been flushing well at New Peradeniya, and we are ahead compared with same date last year, whilst from our other places we have good reports. We have under tea and in bearing 1,555¾ acres, spread over various districts, and they have produced 385 lb per acre, ranging from 280 lb. at Rickarton to 535 lb. at New Peradeniya. We have in addition 286½ acres of young tea, which will in a comparatively short time be making returns. Turning to coffee and cocoa, and including coconuts, we have 1,137 acres in bearing, and, beyond that, we have 416 acres planted during the psst two-and-a-half years. This is an asset of growing value, and, in the course of time, the crops obtained will very sensibly increase our total revenue. The Directors think they are much indebted to their Chairman, for they feel it is due to his initiative that such a large area as nearly six hundred acres have been added to the Company's planted property, a vital point to bear in mind being that the total value of of our properties, according to the Balance Sheet for year ending, June 30th, 1893, was £96,958, whilst the figures before you indicate tho book value as £95,667. In other words, whilst nearly 600 acres have been cleared and planted in this period, the capital according to the books has been reduced by £1,291. These figures speak for themselves I think; so that, not withstanding the fall of exchange, the Directors are confident that our assets are in the total fully worth what they are entered at in the Company's books. Indeed, in view of the very high prices that have lately been paid for Ceylon tea property, perhaps we err on the side of caution in this matter ; but, if that is so, then the difference between the book figures and the ideas of value that different people may put upon our properties constitutes an invisible reserve fund, which in itself should gratify each individual shareholders. Taking the acreage presently in bearing

1,556 Tea
1,137 Cocoa
———
2,693 Acres
———

and dividing that into the book capital it works out a trifle over £35 per acre, but, including the whole of our planted acreage 3,395 acres, the result is £28 per acre. With regard to the New Clearings, the Directors are very satisfied with the planting on Strathisla over 220 acres being brought into cu tivation within the last two years. The largest portion is under cocoa, but we have also planted both Arabian and Liberian coffee and tea. Mr. Wilson says this place is doing very well, and speaks hopefully of the future. I will now refer to the Balance Sheet, comparing it with last year's figures. Our issued capital stands at the same figure, £47,950. Debentures issued are almost the same indicating an increase of £450. The mortgage account which last year amounted to £2,500 has now entirely disappeared from our Balance Sheet. The relative deeds are in our hands, and thus the mortgage deed for £15,000, which formed a first charge on North Matale and Alloowibarie. has been cancelled, materially increasing the value of the Debenture-holders, security ; this security being represented by assets worth over £100,000, and uncalled capital £28,800. The deposits also indicate a small increase, about £280. Sundry creditors show a larger increase, viz., £3,300. Acceptance account shows a welcome diminution, viz., £5,500, whilst the balances due to Superintendents in Ceylon indicate an increase of £750. It will also be observed that the overdraft of £6,250 in last Balance Sheet has now been discharged. Our liabilities are thus reduced from £66,200 to £56,700, using round figures, a difference of £9,500. Turning to the other side of the account our estates capital account stands at much the same as last year. Produce in course of realization marks an increase, whilst the Estimated Produce account shows a reduction. Cash is in pleasing contrast to last year's report, whilst the Sundry Debtor's account has been reduced from £13,795 to £4,909. This speaks for itself. Coast advances are an increasing item. We will now pass on to the Profit and Loss account. The crop expenditure is somewhat in excess of that for last year. Interest remains at much the same figure. The main point of interest on the credit side of the account is the produce account, the total of which amounts to £35,500 roundly, we against £28,300 last year, an increase of £7,200. A vote of thanks was proposed to the Chairman and duly seconded, and which was unanimously carried, for the able way he had connected the business of the meeting, and his lucid remarks w th reference to the company's repor and prospects.

MR. KEILLER, in returning thanks, said, "I feel that we ought not to separate today without recording our deep sense of indebtedness to our worthy Chairman and Managing Director, Mr. Wilson, for the exceptional services he has rendered to the company during the past year ; only those who know all the circumstances connected with Mr. Wilson's long stay in Ceylon can have any idea of the amount of worry he has had to endure, and I consider the ability and devotion he has given to the company's affairs generally while in Ceylon to be beyond all praise, and I do not not think there can be the slightest doubt but that his long sojourn in the Island has been of immense benefit to the company in every way. I would beg therefore to move that we give a very hearty vote of thanks to Mr. Wilson for his exceptional and able services during the past year.

INDIAN TEA SALES.

(*From Watson, Sibthorp & Co.'s Tea Report.*)

CALCUTTA, Jan. 29th, 1896.

There was a good general demand in the sales held on the 22nd instant. Medium pekoes and pekoe souchongs were in strong demand for the Bombay side and the buyers secured about 4,500 chests at prices fully an anna per lb. over current London rates; other descriptions sold irregularly, the general tendency being upwards. 13,649 packages changed hands.

The average price of the 13,649 packages sold is As. 6-3 or about 7d per lb. as compared with 11,062 packages sold on the 24th January 1895 at As. 9-0 or about 8¾d per lb. and 10,665 packages sold no the 25th January 1894 at As. 6-0 or about 7d per lb.

The Exports from 1st May to 27th January from here to Great Britain are 116,499,373 lb. as compared with 111,965,670 lb. at the corresponding period last season and 109,122,618 lb. in 1893.

NOTE.—Last sale's average was As. 6-6 or about 7½ per lb.

EXCHANGE.—Document bills, 6 months' sight, 1s 2 5-32d

FREIGHT.—Steamer—£1-12-6 per ton of 50 c. ft.

THE MOCHA TEA COMPANY OF CEYLON LIMITED.

Interim report for the half-year ending 31st December, 1895.

The Directors have the pleasure to inform the Shareholders that during the period under review both of the estates have made considerably more tea than in the corresponding months of 1894. The total quantity made on both estates has been 145,247 lb. the increase on Mocha being 6,782 lb. and on Glentilt 8,147 lb. The result of the half year's working enables the Directors to declare an Interim Dividend of 8% as was done last year, and after allowing for Depreciation to carry forward R5,035·71. The Dividend Warrants are posted herewith. The Company's Visiting Agent reports very favourably on the condition and prospects of both Mocha and Glentilt, and there is every probability of the estimated crop being fully secured. Mr. Maclure has resumed the superintendence of Mocha after eight months' leave, and Mr. Tench goes on furlough from 1st instant; Mr. Sevier, who has lately been in charge of Mocha, looking after Glentilt during his absence. The Directors are taking steps to increase the withering accommodation on Glentilt, which, they trust, will result in better prices being obtained for the tea from that estate.—H. Bois, J. N. Campbell, W. Moir, Directors.

THE TEA MARKET.

Rules firm with a fairly extensive business, the moderate range of prices inducing the trade to replenish stocks. Indian season is on the wane, but Ceylon shipments now commence on a large scale to keep the market well supplied. The total yield from all sources is not likely to be in excess of the requirements, the increase in the use of tea to all parts of the world showing satisfactory progress.—*L. & C. Express*, Jan. 17.

DEAFNESS. An essay describing a really genuine Cure for Deafness, Ringing in Ears, &c., no matter how severe or longstanding, will be sent post free.—Artificial Ear-drums and similar appliances entirely superseded. Address THOMAS KEMPE, VICTORIA CHAMBERS, 19, SOUTHAMPTON BUILDINGS, HOLBORN; LONDON.

INDIAN TEA SALES.

(*From William Moran & Co.'s Market Report.*)

CALCUTTA, Jan. 29th, 1896.

TEA.—On the 22nd inst., 14,200 packages were sold. There was again a large percentage of common Red leaf tea, for which there was not much demand, but the few desirable liquoring kinds offered, were well competed for, and occasionally showed a slight advance on previous rates. Teas suitable for Central Asia were again much wanted, and were rather dearer.

TOTAL QUANTITY OF TEA PASSED THROUGH CALCUTTA FROM 1ST APRIL TO 27TH JAN.

	1895-96.	1894-95.	1893-94.
Great Britain	116,743,240	111,563,871	109,678,128
Foreign Europe	275,085	240,144	440,191
America	1,073,664	555,870	313,971
Asia	4,377,731	3,622,443	2,569,735
Australia	6,482,923	4,745,216	5,498,563
	128,952,643	120,727 544	118,500,588

VARIOUS PLANTING NOTES.

TEA CULTIVATION IN MAURITIUS.—On page 563 will be found a translation of an article on the above subject which appeared in a recent issue of the Mauritius *Revue Agricole*. It will be seen from this that there is a prospect of tea cultivation being taken up on a large scale in the sugar island in the immediate future, tea being produced for export as well as for local supply. We shall look with interest for the outcome of this movement in our sister colony.

BURMA RICE-CROP PROSPECTS, 1895-96.—From a Summary of the District Officers' reports on the rice-crop prospects on the 31st December, 1895, in the 14 chief rice-producing districts of Lower Burma, we learn that the area under paddy cultivation is now reported as 4,975,555 acres or 7,138 acres more than the area reported last month. Akyab, Hanthawaddy, Thongwa, Bassein, Amherst, Toungoo and Thaton show small increases, while Pegu and Prome show a small decrease: in the other districts the estimated area under crop is unchanged. In Prome, Thongwa, and Bassein the crop is now estimated at 12, 16 and 12 annas respectively against 13, 17 and 14 annas as given last month, while in Amherst the estimate has been raised from 15 to 16 annas. The decrease in the estimate of the Bassein crop is due to the failure of the later ripening showers. It is now estimated that there will be available for export 1,560,000 tons of cargo rice equivalent to 26,440,000 cwt. of white rice.

THE "THIRTY COMMITTEE."—The minutes of the last meeting of this Committee are given on page 567. They are to a large extent a purely formal record without details, but they show that a good deal of business was transacted. With regard to what is being done in America the Committee, while of course fully appreciating the services of Mr. Bierach, could not do otherwise than loyally support Mr. Mackenzie's action as being that of their responsible representative. A good deal of business refers to the finances in connection with the American campaign, and the approval of Government is required for the expenditure of a further sum of £3,000 stg. in the United States. The work of pushing the sale of our staple product in Russia is being taken up by Mr. Stewart M. Anstruther who is at present in that country, but the Committee are anxious to obtain information as to the extent of this business and his proposals before promising assistance in the shape of advertisement.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce).

Colombo, Feb. 3, 1896.

EXCHANGE ON LONDON: CLOSING RATES, *Bank Selling Rates*:—On demand 1/2; 4 months' sight 1/2 1-32; 6 months' sight 1/2 1-16; *Bank Buying Rates*:—Credits 3 months' sight 1/2 5-32; 6 months' sight 1/2 3-16; Docts. 3 months' sight 1/2 3-16; 6 months' sight 1/2 7-32.

COFFEE.—Plantation Estate Parchment on the spot per bushel, R14 to 16·50. Estate Crops in Parchment, Jan. delivery, no quot. Plantation Estate Coffee, f.o.b. on the spot per cwt, R83 to 88.—according to quality. Liberian parchment on the spot per bushel, R12·50 to 13. Native Coffee f.o.b. per cwt. R65.

TEA.—Average Prices ruling during the week: Broken Pekoe, per lb 46c. Pekoe per lb 38c. Pekoe Souchong, per lb 32c. Broken mixed and Dust, per lb 25c.—Averages of Wednesday's sale.

CINCHONA BARK.—Per unit of Sulphate of Quinine per lb 1½c. to 3½c.—1 to 4 %.

CARDAMOMS.—per lb 80c. to R1·70.

COCONUT OIL.—Mill oil per cwt. R15·25 to 15·37.—Nominal. Dealer's oil per cwt. R15·12 to 15·18.—Nominal. Coconut oil in ordinary packages f.o.b. per ton R332·50 to 340.—Nominal.

COPRA.—Per candy of 560 lb R40 to R47·50.

COCONUT CAKE: (Poonac) f.o.b. per ton, R45 to 55.

COCOA.—(Unpicked & undried) per cwt,—No quot.
Do f.o.b. do ....

COIR YARN.—Nos. 1 to 8 { Kogalla per cwt. R7 to 19
{ Col. side ,, R6·00 to 16.

CINNAMON.—Nos. 1 & 2 only f.o.b. 67½c.—Sellers. Ordinary Assortment, per lb 68½c.—Sellers.

PLUMBAGO:—Large Lumps per ton, R150 to 330. Ordinary Lumps per ton, R130 to 290. Chips per ton, R80 to 140. Dust per ton, R30 to 90.

EBONY: per ton.—No Sales.

RICE.—Soolye per bag, R6·85 to R7·90.
Pegu and Calcutta Calunda per bag R7·75 to R8·10.
Coast Calunda per bushel, R2·75 to R3·35.
Muttusamba per bushel, R3·10 to R3·75.
Kadappa and Kuruwe per bushel, R2·70 to 3·00.
Rangoon Raw 3 bushel. bag, R9·00.

FREIGHTS.

Cargo.	Per ton London per str. s. d.	N. York per str. s. d.	Trieste per str. s. d.	Mar'lles per str. R. e.	Hamb', Bremen &c. s. d.
Tea	22/6	..	25/	25	22/6
Coconut Oil	..	..	25/	25	22/6
Plumbago	20/	..	25/	25	22/6
Coconuts in bags	20/	..	25/	25	22/6
Other Cargo	..	..	25/	25	22/6
Broken Stowage	..	..	25/	25	22/6
SAILERS.					
Coconut Oil	..	32/6	..	..	..
Plumbago	..	32/6	..	..	..

New York rates per steamer with transhipment 12/6 @ 15/ above London rates.

LOCAL MARKET.

By Mr. A. M. Chittambalam, 7, Baillie St., Fort.

Colombo, Jan. 22, 1896.

Garden Parchment :—	R15·00 to 15·25	per bushel
Chetty do :—	15·50 to 16·00	do
Native Coffee :—	58·00 to 59·00	per cwt
do f.o.b. :—	64·00 to 65·00	do
Liberian Parchment,	13·00	per bushel (nominal)
do Coffee,	65·00	per cwt
CARDAMOMS.—	0·70 to 1·85	per lb (nominal)
COCOA.—(nominal)	35·00 to 43·00	per cwt do
RICE.—Market is quiet :—		
Kazla	R6·50 to 6·75	per bag
Soolye	7·00 to 7·50	do
Callunda	7·75 to 8·00	
Coast Callunda	3·00 to 3·06	per bushel
Kuruve (New)	2·75 to 2·87	do
Muttusamba	3·25 to 3·50	do

CINNAMON.—Quoted Nos. 1 to 4, at 56c and Nos. 1 and 2 at 60 cents per lb (nominal)

CHIPS.—R75·00 per candy (nominal)

COCONUTS.—Ordinary	R35·00 to 38·00	per 1,000 (nominal)
do Selected	40·00 to 43·00	do do
COCONUT OIL.—	15·00 to 15·12	per cwt do
COPRA.—Market steady :—		
Kalpitiya	R46·50 to 47·00	per candy
Marawila	44·00 to 46·00	do
Cart Copra	39·00 to 43·00	do
POONAC.—Gingelly	65·00 to 75·00	per ton
Chekku	80·00 to 85·00	do
Mill (retail)	55·00 to 60·00	do
EBONY.—quotations at	R100 to R185	(nominal)
SATINWOOD.—cubic feet	1·50 to 2·12	do
HALMILLA.— do	1·25 to 1·50	do
KITUL FIBRE.—Quoted at	R30·00	per cwt (nominal)
PALMYRA FIBRE.—Quoted nominally :—		
Jaffna Black.—Cleaned	(Scarce)	
do Mixed	R17·00 to 18·00	per cwt.
Indian do	R7·00 to 9·00	do
Do Cleaned	10·00 to 14·00	
SAPAN WOOD.—Quoted	60·00 to 70·00	per ton
KEROSINE OIL—American	7·25 to 7·37	Per case
do Russian	3·35 to 3·40	per tin
KAPOK.—Cleaned f. o. b :—	29·00 to 30·00	(nominal)
do Uncleaned	6·00 to 6·50	(Scarce)
Croton Seed	13·00 to 17·00	do
Nux. Vnomica	2·50 to 3·00	per cwt

CEYLON EXPORTS AND DISTRIBUTION.

1895-1896.

COUNTRIES.	P'bgo. 1896 cwt.	Coconut Oil. 1895 cwt.	Coconut Oil. 1896 cwt.	Cinnamon. Chips lb.	Cinnamon. Bales lb.	C'moms lb.	Cocoa cwt.	Tea 1895 lb.	Tea 1896 lb.	Cinchona. 1896 B'nch & Trunk lb	Coffee cwt. Total.	Coffee cwt. N'tive	Coffee cwt. Plantation
To United Kingdom	3118	13126	8057	8424	88670	5452	1726	7215626	6289570	69845	1351	5	1346
,, Austria													
,, Belgium	2059		705	14336	8700				1250				
,, France					23100				2278				
,, Germany	1904		2342	48552	22800	3360		278	8212		5	5	
,, Holland								300					
,, Italy			103		2300			315	1000	832			
,, Russia													
,, Spain								3000					
,, Sweden													
,, Turkey													
,, India			21			2156		32102	7138		10		10
,, Australia							25	401350	507345		346	81	265
,, America	2501	5574						28375	40042				
,, Africa									6910				
,, China								1633					
,, Singapore								265					
,, Mauritius													
,, Malta								3300	12750				
Total exports from 1st Jan. to 3rd Feby. 1896	9582	11228		71312	145570	10968	1751	68764[illegible]		70677	1712	91	1621
do 1895	7224	18700		17950	123104	15076	2377	7686544		46845	5404	..	5404
do 1894	19404	24950		58067	125162	30758	2563	7067723		311885	2931	..	2631
do 1893	18378	18652		52670	59221	30295	1847	6248512		469306	5380	52	5328

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From S. Figgis & Co.'s Fortnightly Price Current, London, 15th January, 1896.)

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY.	QUOTATIONS
ALOES, Socotrine	Good and fine dry liver...	£3 10s a £6
Zanzibar & Hepatic	Common and good ..	30s a 80s
BARK, CINCHONA Crown	Ledgeriana chips ..	2d a 3½d
	Original stem	1½d a 3d
	Renewed	2d a 4½d
	Chips	1½ a 2d
BEES' WAX, White ..	Sli. sof. to gd. hard brig.	£7 10s a £8
Yellow ..	Dark to fair	£6 a £7
Mauritius & Madagascar..	Fair to fine	£6 10s a £7
CAMPHOR, China ..	Fair average quality	197s 6d
Japan ..		201s 3d
CARDAMOMS—		
Allepee	Fair to fine clipped ..	1s a 2s 6d
Mangalore	Bold, bright, fair to fine ..	1s 10d a 2s 8d
Malabar	Clipped, bold, bright fine	1s 8d a 2s 3d
Ceylon	Middling, stalky & lean	1s 3d a 1s 6d
Tellicherry	Good to fine	1s 6d a 1s 8d
	Brownish	9d a 1s 4d
Mysore	Fair to fine plmp. clipd.	1s 9d a 3s 6d
	,, ,, small ..	1s 2d a 1s 5d
Long Ceylon ...	Shelly to good	1s 1d a 2s 11d
	Seeds ...	2s 2d a 2s 4d
CASTOR OIL, 1sts	White	2¾d a 3d
2nds	Fair and good pale ...	2¼d a 2½d
CHILLIES, Zanzibar ..	Fair to fine bright ..	30s a 35s
	Ord'y. and middling ...	26s a 30s
CINNAMON, 1sts	Ord'y. to fine quill ..	9½d a 1s 3d
2nds	,, ,, ,, ,, ..	9d a 1s 1d
3rds	,, ,, ,, ,, ...	8½d a 1s
4ths & 5ths	Woody and hard .	7½d a 9½d
Chips	fair to Good ..	3d a 3⅜d
CLOVES, Zanzibar and Pemba.	Fair to fine bright ...	2 15-16d a 2½d
	Common dull and mixed	1¾d a 2d
,, STEMS	Common to good ...	1d
COCULUS INDICUS ...	Fair sifted...	8s a 12s
COFFEE	Bold to fine bold colory	105s a 112s
	Midding to fine mid .	97s 6d a 104s
	Low mid and low grown	95s a 99s
COLOMBO ROOT... ...	Good to fine bright sound	10s a 20s
	Ordinary & midd ing ...	7s a 8s
CROTON SEEDS, sifted...	Fine fresh ...	50s
CUTCH	Fair to fine dry ...	20s a 32s
DRAGONS BLOOD, Zan.	Ordinary to good drop ...	20s a 50s
GALLS, Bussorah & Turkey	Fair to fine dark blue ...	50s a 55s
	Good white and green ..	40s a 47s 6d
GINGER, Calicut Cut A	Good to fine bold .	68s a 70s
B & C	Small and medium ..	52s 6d a 57s 6d
Cochin Rough...	Common to fine bold ..	33s a 37s
,, ...	Small and D's ...	30s a 33s
Bengal Rough,	Fair to good ...	18s a 22s
GUM AMMONIACUM ...	Blocky to fine clean ...	20s a 50s
ANIMI, washed ..	Picked fine pale in sorts	£9 a £11
	Part yellow & mixed do.	£8 10s a £8 15s
	Bean & Pea size ditto .	£4 a £7 10s
	Amber and red bold	£5 a £7
scraped..	Medium & bold sorts .	£4 a £7
ARABIC E.I. & Aden...	Good to fine pale frosted sifted	42s 6d a 50s
	Sorts, dull red to fair ...	32s 6d a 40s
Ghatti ...	Good to fine pale selected	40s a 50s
	Sorts middling to good	32s 6d a 37s 6d
Amrad cha	Good and fine pale ...	35s a 50s
	Reddish to pale brown ...	27s 6d a 32s
Madras ...	Dark to fine pale ...	20s a 33s 6d
ASSAFŒTIDA	Fair to fine pinky block and drop	45s a 80s
	Ordinary stony to middling	15s a 40s
KINO	Fair to fine bright ..	£25 a £30
MYRRH, picked	Fair to fine pale ...	£4 10s a £6
Aden sorts	Middling to good ...	60s a 70s
OLIBANUM, drop...	Fair to fine white ...	30s a 55s
,,	Reddish to middling ..	20s a 25s
pickings...	Middling to good pale ...	8s a 14s
siftings ..	Slightly foul to fine .	9s a 13s
INDIARUBBER	Red hard clean ball ...	2s 1d a 2s 5½d
East African Ports, Zanzibar and Mozambique Coast	White softish ditto ...	1s 8d a 2s 2d
	Unripe root	10d a 1s 5d
	Liver and Lamu Fall ...	1s 8d a 2s 2d
	Sausage, ordinary to fine	1s 3d a 2s
	" without sticks	2s 1d a 2s 4d
Assam	Good to fine ...	1s 7d a 2s 2d
	Common foul & middling	9d a 1s 5d
Rangoon	Fair to good clean ..	1s 6d a 2s 2d
Madagascar, Tamatave, Majunga and Nossibe	Good to fine pinky & white	2s 2d a 2s 6d
	Fair to good black ...	1s 6d a 1s 10d
ISINGLASS or FISH MAWS Tongue.	good to fine pale ...	2d a 2s 9d
	dark to fair ..	10d a 1s 3d
Bladder Pipe	Clean thin to fine bold...	1s 8d a 2s 9d
Purse...	Dark mixed to fine pale...	7d a 1s 3d

EAST INDIA. Bombay, Ceylon, Madras Coast and Zanzibar.	QUALITY.	QUOTATIONS.
Kurrachee Leaf ..	Good and fine pale	
	Red part thin ..	2s 6d a 3s 2d
INDIGO Bengal	Middling to fine violet...	1s 8d a 2s 4d
	Ordinary to middling ...	1s 6d a 5s 2d
Kurpah	Fair to good reddish violet	[illegible] a 1s 3d
	Ordinary and middling	2s 7d a 3s 1d
Madras (Dry Leaf)	Middling to good ...	1s [illegible] a 2s 4d
	Low to ordinary ...	1s 7d a 2s 10d
		7d a 1s 5d
IVORY—Elephants' Teeth		
60 lb & upwards ...	Soft sound	
over 30 & under 60 lb.	,, ,,	£59 a £66
60 a 100 lb. ...	Hard ,, ,,	£51 a £62 10s
Scrivelloes	Soft ,, close & wide	£38 a £47
Billiard Ball Pieces 2⅝ a 3¼ in	Sound soft	£23 a £35 10s
Bagatelle Points ...	Sli def. to fine sound soft	£91 10s a £103
Cut Points for Balls ...	Shaky to fine solid sl. sft	£54 a £63
Mixed Points & Tips...	Defective, part hard ..	£67 a £73
Cut Hollows	Thin to thick to sd. sft	£33 a £46
Sea Horse Teeth — ...		£25 a £41
⅔ a 1¼ lb.	Straight crked part close	
MYRABOLANES, Bombay	Bhimlies I, good & fine pale	1s a 3s 1d
	.. II, fair pickings	7s 6d a 7s 9d
	Jubblepore I, good & fine pale	3s 6d a 4s
	,, II, fair rejections	6s 3d a 7s
	Vingorlas, good and fine	3s 6d a 4s 6d
		1s 6d a 5s 6d
Madras, Upper Godavery	Good to fine picked ...	
,, ,, ..	Common to middling ...	5s a 5s 6d
Coast	Fair	3s 3d a 4s
Pickings ...	Burnt and defective ..	4s 6d a 4s 9d
MACE, Bombay ...	Dark to good bold pale .	3s 3d a 3s 9d
	W'd com. dark to fine bold	1s 6d a 2s
NUTMEGS, ,, ...	65's a 81's	4d a 6d
	90's a 125's	2s 1d a 3s 2d
NUX VOMICA	Fair to good bold fresh	1s 5d a 2s
OIL, CINNAMON ...	Ordinary to fair	6s a 9s
CITRONELLE ...	Bright & good flavour..	4d a 1s 3d
LEMONGRASS ...	,, ,, ,, ...	1s 10d a 2s
ORCHELLA WEED Ceylon ...	Mid. to fine, not woody	2½d
Zanzibar	Picked clean flat leaf ...	11s a 15s
Mozambique	,, wiry	12s a 18s
		22s a 32s
PEPPER—		
Malabar, Black sifted ...	Fair to bold heavy ..	
Alleppee & Cochin ..	,, good ,, ...	2¼d a 2⅜d
Tellicherry, Black ...	,, ,,	
PLUMBAGO, Lump ...	Fair to fine bright bold	
	Middling to good small	15s a 16s
Chips ...	Dull to fine bright	3s 6d a 13s
Dust ...	Ordinary to fine bright ..	1s 6d a 8s 6d
RED WOOD	Fair and fine bold .	2s a 6s
SAFFLOWER, Bengal	Good to fine pinky nominal	£4 a £1 10s
	Ordinary to fair ...	70s a 90s
	Inferior and pickings ...	60s a 70s
SANDAL WOOD, Logs	Fair to good flavour ...	30s a 50s
,, ,, Chips..	Inferior to fine	£30 a £50
SEEDLAC	Ordinary to fine bright	£4 a £8
SENNA, Tinnevelly ...	Good to fine bold green	50s a 100s
	Fair middling medium	6d a 8d
	Common dark and small	3d a 5½d
Bombay ..	Ordinary to good ...	½d a 2¼d
SHELLS, M.-o'-P. ..	EGYPTIAN—bold clean .	1d a 2d
	medium thin and stout	70s a 77s 6d
	chicken, part oysters	65s a 8[illegible]s
large	BOMBAY—poor to fine thin	62s 6d a 77s 6d
medium part stout	clean part good color	75s a 82s 6d
chicken part stout	,, ,, ,,	70s a 85s
oyster & broken pcs	,, ,, ,,	77s 6d a 87s 6d
Mussel	medium and bold sorts	70s a 85
	small and medium sorts	40s a 47s 6d
Lingah Ceylon .	Thin and good stout sorts	17s a 30s
TAMARINDS	Mid. to fine black not stony	9s a 10s
	Stony and inferior ...	5s a 11s
TORTOISE-SHELL ...	Sorts good mottle, heavy	1s a 6s
Zanzibar and Bombay	Pickings thin to heavy...	24s a 30s
TURMERIC, Bengal ...	Leanish to fine plump finger ...	6s a 22s 6d
		7s a 8s
Madras ...	Fin. fair to fine bold brgt	8s a 9s 6d
,, ...	Mixed middling	7s a 8s
,, ...	Bulbs	6s 6d a 7s 6d
Cochin ...	Finger	7s a 7s 6d
	Bulbs	5s 6d a 7s 6d
VANILLOES,		
Bourbon, 1sts ...	Fine, cryst'ed 5 to 9 in.	22s a 33s
Mauritius, 2nds...	Foxy & reddish 5 to 8 in.	16s a 24s
Seychelles, 3rds...	Lean & dry to mid. under 6 in. ...	12s a 15s
Madagascar, 4ths...	Low, foxy, inferior and pickings	6s a 10s

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "*TROPICAL AGRICULTURIST.*"

The following pages include the Contents of the *Agricultural Magazine* for February :—

Vol. VII.] FEBRUARY, 1896. [No. 8.

GRAPE CULTIVATION IN COLOMBO.

THE vine experiment at the School of Agriculture continues to give satisfaction. There is at present a small crop of fruit—nearly thirty bunches—maturing, some of them being of the black variety. The vines in fruit were planted in Colombo at the beginning of August last—about 6 months ago—and were raised from cuttings planted in Australia in September, 1894, so that they are now only 18 months old. It is therefore far too early to judge of the fruiting capacity of the new varieties of the grape that M. Zanetti has introduced in Ceylon, nor of the suitability of Colombo for their successful growth. In the beginning of January Mr. A. T. Pearson, who has had considerable experience of fruit-growing in Australia, visited the vineyard at the School of Agriculture, and his opinion of the experiment, as given in an "interview" published in the *Times of Ceylon*, is decidedly encouraging. We quote the following paragraph :—

"Mr. Pearson mentioned that he had been out to the Agricultural School in Colombo and inspected Sig. Zanetti's vines, and the appearance of these had given him still greater encouragement. He himself had undertaken viticulture in Australia, and ten acres of his land at Mildura were planted with vines, but he does not contemplate grape-growing here. He says that he should have thought Colombo particularly unsuitable ; but he found the vines as healthy-looking as the best he had seen in Australia, and he does not know how Sig. Zanetti has got over the difficulty of perpetual summer, unless he has bared the roots of his vines and so introduced artificial dormancy. After what he had seen in Colombo, he thinks that grapes might be successfully grown on the hills."

While visiting Matale lately we took the opportunity of inspecting a vine which we saw last August carrying a very heavy crop of fruit. On our recent visit the vine had been pruned early in December, and was just putting out new leafage. The September crop had given half a cwt. of fruit, and after the taking in of the crop,—the vine, which had spread over a large 'pandal'—was subjected to an artificial wintering caused by the exposure of the roots for 7 or 8 days. Since then we have had a visit from a gentleman of Calpentyn who startled us with the results of his vine-growing in that arid clime. He said he had two 'pandals,' each of which carried three vines, and that he got a crop of 1,000 lbs. of grapes from each pandal, *i.e.*, 333 lbs from each vine. We presume that this represented the annual produce. We were further told that each bunch of grapes weighed about 2 lbs., so that Calpentyn must be a veritable paradise for grape-growing. The climate there is exceedingly dry (we do not suppose that the annual rainfall could be much more than 30 inches, if it is as much as that), and it is necessary, we were told, to regularly water the vines. The wonder to us is, why grape cultivation is not carried on more extensively in the Calpentyn district. Taking only 50 vines (on the 'pandal' system) to an acre, and 300 lbs. per vine as a likely annual crop, we get no less than 15,000 lbs., which at 50 cents per lb. would fetch 7,500 rupees !

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF JANUARY, 1896.

1	Wednesday ..	·10	19	Sunday ..	Nil
2	Thursday ..	·18	20	Monday ..	Nil
3	Friday ..	·01	21	Tuesday ..	Nil
4	Saturday ..	Nil	22	Wednesday ..	Nil
5	Sunday ..	Nil	23	Thursday ..	Nil
6	Monday ..	Nil	24	Friday ..	Nil
7	Tuesday ..	Nil	25	Saturday ..	Nil
8	Wednesday ..	·40	26	Sunday ..	Nil
9	Thursday ..	1·46	27	Monday ..	Nil
10	Friday ..	Nil	28	Tuesday ..	Nil
11	Saturday ..	Nil	29	Wednesday ..	·01
12	Sunday ..	Nil	30	Thursday ..	Nil
13	Monday ..	Nil	31	Friday ..	Nil
14	Tuesday ..	Nil	1	Saturday ..	Nil
15	Wednesday ..	·08			
16	Tuesday ..	Nil		Total ..	2·08
17	Friday ..	·21			
18	Saturday ..	Nil		Mean ..	·06

Greatest amount of rainfall in any 24 hours on the 9th instant, 1·46 inches.

Recorded by J. D. S. JAYAWIKRAMA.

ORANGES.

The fruit-growing industry which has been so long neglected in Ceylon is at last beginning to be thought of seriously, and a pioneer in systematic fruit-farming has already appeared in Mr. A. J. Pearson. Mr. Pearson is not a stranger to Ceylon, where he had been a resident for some years in the planting districts before leaving for Australia. There he seems to have gained invaluable experience in the matter of fruit cultivation, and he has now returned with a strong determination to grow oranges and lemons successfully and remuneratively in Ceylon. Mr. Pearson will probably choose Uva as the scene of his operations, and intends bringing over grafted trees from Australia and planting at the rate of a hundred to the acre. To a contemporary's interviewer he is reported to have said: "As to the profits to be derived from orange-growing, I consider that £50 net profit per acre is a very moderate estimate—in fact, under the mark."

Mr. Pearson speaks of introducing three varieties of the orange, viz., the Washington Navel, the Mediterranean Sweet, and the Homosassa orange. The three varieties mentioned below (two of which have been chosen by Mr. Pearson for Ceylon) are, we believe, the most highly thought of in California:—

"The Washington Navel is the most popular and undoubtedly the best orange grown at this time in California. It matures at a season when the fruit is most acceptable. Being seedless, it is desirable to the old and young. At its best it is a happy blending of sweetness and citrous qualities. It is a strong and rapid grower when young, and fruits evenly and regularly. It ships well, having good protective qualities. It can be marketed early, and is well advertised.

"The Paper Rind St. Michael is a late variety. It outranks the Navel in thinness of rind, in acidity and the albuminoids; ranks well in sweetness, is of good flavour, and has seeds galore. The tree, like the Navel, is a strong, rapid grower, and requires about the same treatment in culture and fertilization. It succeeds best under the same climatic conditions as the Navel. The albuminoids are more largely distributed in the flesh of the St. Michael than in other varieties. It is rich in sweetness and is winning its way to popular favour upon its intrinsic merit.

"The Mediterranean Sweet is an orange nearly seedless. Its form is oval and grows to an even size. It is good in sugar and citrous qualities. The tree is less vigorous in growth than either of the other varieties, both in root and leaf. The position of the leaves and short internodial spaces cluster the fruit which is usually evenly distributed over the tree. It ripens before the St. Michael and after the Washington Navels."

[These notes are taken from a paper by Mr. W. C. Fuller of Califonia.]

We most heartily wish Mr. Pearson success in his new enterprize.

AN IMPORTANT DECISION IN AGRICULTURAL LAW.

THE USE OF LAND IN "MALA FIDE."

The House of Lords has recently decided a case of great importance in regulating the rights of a landowner. Contrary to the rule of Scotch law, it has been held that in England there is no ground for redress in law against a landowner who uses his legal rights over his own land with intent to injure a neighbour. A landowner, in other words, in England may dig pits in his land for no object except to intercept the flow of the subterranean water, aud so to drive a neighbouring proprietor of water works to purchase his land from him at his own price. The facts of the case, which has now been finally decided by the House of Lords, are these:—The Corporation of Bradford as owners of waterworks, are entitled to take water from certain springs. The defender, who is an owner of adjacent lands, proceeded to make a tunnel for the alleged purpose of draining beds of building stone under his lands, but with the real purpose (as was alleged by the Corporation) of compelling the Corporation to buy his land; for the effect of these tunnels was to cut off the underground stream of water which supplied the Corporation waterworks. Mr. Justice North held that the charge against the defendant was well founded, and that his operations were intended for the drainage of his stone—not in order that he might be able to work it, but in order that the plaintiffs might be driven to pay him not to work it. That being so, he held that, though the defendant's act was lawful in itself, it was illegal, since done with the malicious intent of injuring a neighbour. Accordingly, Mr. Justice North granted an injunction against the defendant from proceeding further with his tunnelling. The Court of Appeal reversed this decision, and refused to prohibit the defendant from exercising his legal rights. They held that, since what the defendant proposed to do did not exceed his rights of the law of England, his motives were immaterial. The House of Lords, in an elaborate judgment, have upheld the decision of the Court of Appeal. They held that the landowner had a right to do what he had done whatever his object or purpose might be, and although the purpose might be altogether unconnected with his enjoy-

ment of his own estate. "This is not a case in which the state of mind of the person doing the act can affect the right to do it. If it was a lawful act, however ill the motive might be, he had a right to do it. If it was an unlawful act, however good his motives may be, he would have no right to do it. Motives and intentions in such a question as is now before your lordships seem to me to be absolutely irrevelant." This decision has caused widespread alarm in England. Every reservoir of public water supply in the kingdom, which depends immediately on subterranean springs and not on rivers, lakes, or surface streams, has become liable to interference and possible expropriation by owners of adjacent lands. The *Solicitor's Journal* and other papers suggest that the law must be altered by Act of Parliament.

THE MANAGEMENT OF DAIRY CATTLE.

BY MR. JAMES MOLLISON,
Superintendent of Farms, Bombay Presidency.

Drinking water or succulent food given immediately before the animal is milked is believed by the *gavli* (milkman) to increase the yield of milk. The quality necessarily must be lowered in a corresponding degree. A native will, when he sells a buffalo guaranteeing a certain milk yield, invariably allow the animal to drink freely before proceeding to milk. It is possible that the milk yield may be affected in this way, for succulent food undoubtedly lowers the percentage of total solids in milk by making it more watery. In 1892, at the Poona Government Farm, during the hot season 10 lbs. buffalo milk on an average yielded a lb. of butter, whilst during the following rains when a good deal of the food was succulent, the average was 1 lb. butter from 12 lbs. milk. During 1893 it was found possible to feed during the whole year a limited quantity of green fodder, and the difference previously marked was not so noticeable although still appreciable. The actual figures were: during February, March, April and May, the average quantity of milk required to produce 1 lb. of butter was 11 lbs. 7 oz.; similarly for June, July and August, the average weight was 12 lbs. 8 oz.

The quality of the milk is in other respects influenced by food. Thus cream from milk of buffaloes, largely fed on oil-cake, will churn into greasy butter even if the temperature of the cream in the churn is lowered artificially to the most favourable point. Cotton seed tends to produce fine firm butter, and the cream can be churned at a comparatively high temperature. The cream from cows fed largely on *chuni* (husk of *Cajanus indicus*) gives butter which has a nice flavour and a better colour than usual.

When green fodder is given in fair quantity, cotton seed and *chuni* (husk of *Cajanus indicus*) can be fed to any reasonable extent. If otherwise, the allowance of each should not exceed 4 lbs. per day. Lucerne is not a good fodder for milk cattle in any quantity beyond 10 lbs. per day. Jovári (*Sorghum vulgare*) should be well in flower before it is cut as green fodder, otherwise like lucerne it has a tendency to cause tympanites.

is quite possible to over-do the feeding of milk cattle. A cow in milk should not be in high condition. An animal in very high condition will give very little milk, and this probably accounts for a common practice with *gavlis* (milkmen,) viz., to give a less quantity of food to fat animals so that the milk yield may increase.

Indian cows and buffaloes are so excitable and irritable that a very trivial circumstance often affects the milk yield. Its secretion is influenced to a very great extent by good management. If the calf dies, the milk yield may be diminished permanently. There is an Indian proverb, the English rendering of which is "soil without manure is like a cow without her calf." Any sudden change in the food, a short journey by road or rail, a strange milker, a cold or wet day, any irregularity in feeding, and especially any irregularity in milking at once re-act on the milk yield. Indian cows, and more especially buffaloes, get attached often in a striking manner to the man that feeds and milks them, also to the companion animals occupying the adjoining stalls; at pasture they clique together in a curious way, and it will be easily understood that any disturbance of these friendly relations will have a distinctly unfavourable effect on milk selection. Aden cattle are different. They have docile tempers and their milk yield is not easily affected by any irregularity. Moreover, their calves can be weaned and handled, whilst it is imperative that the calves of every Indian breed should suckle. At any rate such is the case unless the practice is begun when the cow has her first calf. The maternal instincts are very strong, and neither cows nor buffaloes will yield their milk unless the calf is sucking or is tied close by. When the calf dies it is common to stuff the skin and make a dummy calf which answers the purpose admirably. Where milk is dear it does not pay to rear calves, especially bull buffalo calves, and in many instances buffalo calves are quietly knocked on the head and the dummy substituted. Whether it is intended that the calf should suckle or be raised by hand it should be left with the mother until it is licked dry and clean. This has a sulutary effect on the cow as well as on the calf. The viscous slimy matter which covers the calf has a beneficial laxative effect on the cow. When removed from the cow the calf should be kept out of sight and out of hearing.

The most noticeable signs of approching parturition are:—

(1.) Full distention of the udder.

(2.) Loosening and enlargement of the external portions of the vagina.

(3.) Relaxation of the pelvic ligaments.

(4.) Restlessness a few hours before calving. The cow rises and lies down frequently in her stall and whisks her tail as if in pain.

(5.) Labour pains and the water bags. The membranes of the latter when broken allow of a slimy fluid to escape which lubricates the passage and facilitates the expulsion of the calf.

The cow, when nearly due to calve, should, when not grazing, occupy a roomy stall in a comfortable part of the byre. The stall should have a dry floor, and, if possible, should be littered with dry straw. This obviates the risk of an inflamed udder. If the udder appears swollen and feels hard, the milk should be drawn once a day even before calving.

In normal parturition the calf presents itself in the pelvic passage with the head resting on the forelegs. The cow generally requires no as-

sistance, and none should be offered unless labour is protracted. The owner should, however, satisfy himself early that the presentation of the calf is right. Assistance is sometimes necessary, especially with heifers having their first calf. When given, the hands and arm of the operator should be clean and well rubbed with carbolic liniment. Assistance is most effective when the cow lies on her side and the calf's legs pulled slightly downwards towards the hocks of the cow. The operator should only assist each labour pain and should not pull at any other time. The afterbirth should come away at once or in the course of a few hours.

If labour is protracted owing to a false presentation or from any other cause, or if the afterbirth is retained, then if the stock owner has no technical knowledge as to treatment, the assistance of the nearest qualified veterinary officer should be obtained without any delay.

The milk of a cow or a buffalo immediately after calving is of a peculiar nature. It is called "beastings," and its function appears to be to clear the intestines of any accumulated matter which of course should at once be excreted. There is no risk of costiveness, provided the calf is allowed to drink a fair quantity of the first milk. Ordinarily in India the calf is starved. It is allowed to suckle until the cow lets the milk down. The moment milk fills the teats the calf is tied up near the head of the mother and all the milk which the gavli (milkman) can extract is taken. The calf is then untied and sucks all it can afterwards. It is impossible that it can get more than 2 lbs. per day. It, however, gets the richest part of the milk. All that it usually gets is barely sufficient to support existence. The difference in butter fat between the first and last milk drawn from a buffalo is shown by the following figures, the actual results of a test at the Poona Government Farm:—

Percentage of butter fat in the first *ser* drawn 4·0
" " last " 10·1

Average percentage of butter fat in the whole milk of the buffalo 6·98.

HORSE-BREEDING.

The possibility of breeding serviceable horses in Ceylon has been treated of in the columns of the Magazine before now. The importance of the subject is brought before us daily by the large number of horses that are imported here annually from Australia and India. During the last twelve months, in the absence of reliable statistics, we may roughly estimate the number of Australian ponies and horses imported to the Island at 300, and Indians, Persians, and Arabs at 200, valuing an Australian horse on an average at R400, the cost of Australian horses imported to the Island comes to about R120,000, considerably over a lac of rupees. The two hundred Indians &c. may be valued at R50,000, so it is seen that we annually import horses to the value of about R170,000. Now the demand for horseflesh can at least partly be supplied locally, it we start the horse-breeding industry in the Island. There are large tracts of land in the North-Central and the Southern Province under natural pasture, and really good horse-runs can be established in any of these places. In Australia the breeding of horses does not involve many troublesome details. It fact, the animals are to a great extent left to themselves, and in many instances the first attention paid to a colt is when it is about to be sold. In India, there are many breeding farms conducted on approved principles, but most of the horses are kept by small landowners, somewhat in the same way cattle are kept here. The horses thus bred are not a very superior lot, but they fetch fairly remunerative prices.

Before this industry can be popularized among our own small landowners, it will be necessary for Government to start one or two breeding farms to prove that horse breeding could be successfully carried on here. Fifty mares and two or three stallions would on an average yield forty colts annually. The initial cost of the purchase of the mares and stallions should not exceed R20,000; and after three years the annual produce of the farm may be put down at forty colts, which will fetch an average price of R200, or a total of R8,000. The expenses of the attendants, pasture, &c., will easily be recouped if the animals are kept in connection with a farm where they can be employed for agricultural work. The subject deserves careful attention at the hands of those interested in new industries.

W. A. D. S.

SOME RECENT UTTERANCES ON "AGRICULTURAL EDUCATION."

The winter session of the Agricultural Department of the Glasgow and West of Scotland Technical College was inaugurated on Wednesday last, by the delivery of Professor Campbell's lecture. Professor Wright presided at the lecture, and in introducing Professor Campbell, said: In beginning our course of classes for winter, I may be permitted to say a few words on a subject recently much discussed, viz., agricultural education. Many sensible things have been said and written, many also that cannot be so characterised. In particular, I think that some injustice has been done to farmers in one or two respects. Some speakers have assumed that farmers were a most ignorant class who knew nothing, and who wanted to know nothing. Now, my opinion is quite otherwise. I think there are few men outside the bounds of the learned professions who have such a wide, minute, and extensive knowledge as farmers. Only those who are at all acquainted with agriculture can know how extremely great is the range of knowledge required if a man is to be thoroughly acquaintedwith all branches of practical farming. I know of no business in which the requirements of knowledge are so great as in farming, and there is no class of the business community whose knowledge is so extensive as that of farmers, and I know of none in which the exercise of that knowledge is worse paid. It may be admitted that in regard to what is especially known as agricultural science, farmers generally are not so well informed as in regard to other branches of their business. But who is to blame for that? Not farmers. I am amazed, when I consider the poor opportunities they have had, and the difficulties they have had to contend with, to meet with so many farmers who have succeeded in acquiring a remarkable acquaintance with all branches of agricultural science and practice. Who

is to blame if all farmers are not so learned? I say again not the farmers, but the Government. My able colleague, Mr. Hendrick, has recently pointed out that no great comprehensive scheme of education has ever been established in any country, except by a Government or some similarly powerful authority. American, French, German, Danish, and all other systems of agricultural education owe their existence and their chief support to Government aid. In our own country a great system of elementary education has been instituted by a Government Department. Secondary education is organised by Government, and our universities receive large endowments and grants from Government. How is it expected that agricultural and technical education only should be left to voluntary effort? No intelligent man will question the importance of elementary education, but had it been left to voluntary effort alone, it is certain that no such complete and comprehensive system could ever have been instituted. This holds still more true of technical education; and if it be the case that there are branches of agricultural science with which farmers have little acquaintance, I affirm that the fault does not lie with them."

But it ought to be added, after all, the education in Agricultural Science can have only a limited influence on farming. There are many qualities, combined with great and minute practical knowledge, that go to make a successful farmer. Science is only of secondary importance as compared with these: it can only contribute a little more to help a man to success, but so far as it does so, it deserves the greatest attention from all friends of agriculture, and much greater support from them and from Government than it has hitherto received in this Kingdom.

The following is from an address by Principal Smith:—

"Those of you who have been but a short time at the College, and have learned something of the nature, composition, and uses of artificial manures, will be able to gauge the value of the instruction you receive when you are told that farmers may be met with who use superphosphate of lime instead of nitrate of soda for no other reason than that the former is cheaper than the latter. This is simply a matter of ignorance, which will not be possible when instruction in 'science' has become more general.

"Some practical people are prejudiced against 'science' and 'agricultural science.' But I do not think they will quarrel with the definition as given by Mr. Warington at Ipswich. 'Agricultural science should mean,' he says, 'the best knowledge of the day on the subject of agriculture, and a farmer will do wisely to obtain the aid of this knowledge in all his operation.' We do not ask for science to supplant experience, but to supplement and to aid it.

"In the discussion which followed the reading of Professor Warington's paper, Professor Marshall Ward pointed out that a system of practical agricultural investigation was one thing, and a system of agricultural education was another. That, I think, was a most appropriate remark. Research and education cannot go along together, and do not to any great extent in other departments of science: a teacher should seek to disseminate the information that has been gained by research. It may be a humbler function than the office of adding to the stock of the world's knowledge by means of original investigation, but it is a no less necessary one."

DAIRY FARMING AND MURRAIN.

We make the following extracts from the annual report of Mr. Mollison, Superintendent of Farms, Bombay, with reference to the Poona Dairy and dairy herd. [In 1894 the Ceylon Government Dairy was unfortunate enough to experience an outbreak of murrain (rinderpest) among the dairy herd; all the details with reference to this outbreak were made public at the time, and formed the subject of a special report by the late Colonial Veterinary Surgeon, Mr. Lye. With the recollection of that sad experience still fresh in our memory, we can deeply sympathize with the Superintendent of the Poona Farm on the outbreak which the Dairy experienced during the year ending March 31st 1895]:—

The financial results are shown in the appended balance-sheet. The profit for the year is R266-11-6 as against R2,254-13-2 last year.

The reason why the margin of profit is so small is due to a very serious outbreak of rinderpest during the year. If reference is made to Appendix V it will be seen that 54 cattle died during the year; of these one cow (our best Aden) was poisoned (intentionally I believe), one cow died from inflammation of the lungs, and a few calves were lost, as they ordinarily will be. There were 34 deaths due directly to rinderpest, and some calves which recovered from disease died from after-effects. They never recovered their strength though well cared for. The indirect loss due to diminished milk yield in the healthy cattle was probably more than that from death. The disease first broke out amongst unweaned calves, and these had necessarily to be separated from their dams. The maternal instincts of Indian cattle are very strong and the effect of separation from the calves upon the milk yield, especially of the buffaloes, was remarkable. The cattle were in full milk at the time, the whole herd giving about 700 lbs. daily. A week after the rinderpest appeared the daily yield was about 450 lbs., representing a daily loss of 18 rupees. It seems to be practically impossible to wean calves at birth from Indian milk cattle unless done when the heifer has her first calf, but the above results point to the necessity of doing so if possible. The carcases of the cattle that died were all burnt. This, with medicines, cost R266.

The number of deaths was about 70 per cent. of affected cases. It is significant that indigenous breeds escaped contagion to a far greater extent than exotic breeds. An English cow and calf belonging to his Excellency the late Governor were about the first to succumb. Two Bahrein cows of a noted milk-breed which I had bought at considerable expense from the head of the Persian Gulf, died within thirty hours of the first symptoms. Every Aden which came in contact with contagion became infected and died. We lost one Sind cow, but no Gir cattle, and only two buffalo-cows, though a number became infected but only in a mild manner. Young buffalo and cow-calves died very quickly. Cows advanced in pregnancy

were hopeless cases. Symptoms of abortion became apparent and inversion of the uterus resulted in every case. We had a *post-mortem* examination on one of these cases, and the fœtus was found to have characteristic rinderpest symptoms.

As far as I could judge, careful veterinary treatment did very little good. The most effective medicine was carbolic acid given in gruel, its influence being a healing one on the highly inflamed membranes of the intestines. I believe the cure of cases to have been chiefly due to careful nursing and to drenching the animals with good gruel. The gruel consisted of linseed boiled with rice, fresh separated milk, and water. We got rid of the disease by segregation.

The disease was disastrous at the farm, but I can conceive that it was far more so in the city of Poona and the surrounding vlllagas where it was rife. Under existing conditions the spread of contagion is not only absolutely uncontrolled, but is encouraged. The Mhars eat the flesh of animals that die and they offer the diseased skins in any market where they can get a good price. The carcase is generally cut up on the bank of a *nala* or stream, and the offal is left there as a centre of contagion for every healthy animals that grazes in the vicinity. It is common knowledge that when outbreaks of rinderpest occur they generally spread along the course of streams or rivers. These are points affecting the healthiness of the cattle of the country. But there is another question, viz., that which affects the public health. It is absolutely certain that milk from cattle suffering from rinderpest was sold in Poona to the public during the prevalence of the disease. There is some comfort in the fact that as regards buffalo's milk, the public have some protection, inasmuch as a buffalo, unlike a cow, when infected with rinderpest or ailing in other ways almost always refuses to give any.

The dairy produce from about seventy milch cattle was sold for R15,303, cattle food, fodder and fodder grazing cost R10,968. There was a stock of on hand at the end of the year worth R1,507. If the dairy herd keeps healthy there will be no difficulty in any year in making the dairy a profitable institution. The price of diary produce supplied to the Commissariat Department for sick soldiers in hospitals is lower than the rates charged to the public. The latter rates are fixed purposely higher than the rates of private dairymen in Poona. Yet we could sell to private families to a much greater extent than is done now if there was an available supply, which there is not.

THE DISPOSAL OF NIGHT SOIL.

The subject of the disposal of night soil is one of general importance, but particularly so in tropical countries, where owing to the heat and moisture which generally characterise them, decomposition and fermentation go on much more rapidly than in temperate climes. The views of competent authorities on the subject of night soil in its relation to India, and a reference to the methods of disposing of it there, should prove useful to us in Ceylon, where the conditions of life are so similar to those on the mainland.

Dr. J. W. Leather, agricultural chemist, writes a note on the subject, which is issued as one of the Agricultural Ledger series of publications. There is perhaps no more important subject in relation to agriculture, says Dr. Leather, than the proper disposal of night soil and other town refuse, for it may be said without exaggeration that nearly one-half of the plant food extracted by food crops from the soil is contained in the materials which are included under these two heads. It follows, therefore, that on their proper disposal and return to the soil depends the addition of a large proportion of the food necessary for the crops. In the case of small villages in India, he says, the customs of the people in a great measure fulfil what is required. At the same time it would appear that there are exceptions even to this practice in some places. For instance, Dr. Nicholson, writing of the Coimbatore district says: "Generally speaking the lanes and hedges around houses are fouled with matter in its wrong place, and the chief manurial agent becomes a curse for want of employment."

In any case, in reference to the custom of the people of using the fields next to the village, there can be no doubt that it would be a great improvement, from a sanitary point of view, if the people could be persuaded to employ a covering of earth. The desirability of this will have been observed by all who have had occasion to visit villages. But in the case of the large towns a more systematic disposal of both night soil and sweepings is necessary.

Dr. Voelcker, in his report on the Improvement of Indian Agriculture, says: "I regard the spread of a good system of utilizing human and household refuse, street-sweepings, &c. on the land as a potent factor in the improvement of Indian agriculture, and having had among other duties to enquire into different schemes for town sanitation, I must record my conviction that the dry system is the one best suited to Indian circumstances, and that any system which diverts from its proper destination, the land, that which has originally come from it, would be attended by loss to the cultivator and to the State, and would not be satisfactory from a sanitary point of view."

Dr. Leather states that the practice in some places consists in depositing all refuse in pits about 3 feet deep and of considerable area, and after the whole has been thus filled, crops or fruit-trees are grown on the land. The objection to this practice, which is adopted in Dumraon, is, says Dr. Leather, that the refuse might be advantageously spread over considerably greater areas.

Another system referred to is the digging of long trenches about 6 inches or 1 foot deep and a foot wide, and filling them in with 3 to 6 inches of refuse and then covering over with the earth whih has been removed. This, says Dr. Leather, is undoubtedly a good method, but even here there is a great concentration of the material, and it has been found in some instances, that owing to carelessness in putting more than the proper amount of night soil in one place, the earth thrown over the surface has been insufficient to properly deodorize the refuse.

Dr. Leather further goes on to remark that it is an advantage in the systematic disposal of night soil if it can be distributed over a large area and not concentrated unnecessarily in one place, and it is also an advantage if the system employed does not necessitate its removal after it has once been deposited in the soil.

Some time ago we undertook, at the instance of the then Mayor of Colombo (Mr. H. H. Cameron) to carry on an experiment in the trench system of dealing with night soil. The result of this experiment was so satisfactory, that the trench system has been adopted in connection with the conservancy of the School of Agriculture. The deodorization of the filth was so complete, that a valuable and by no means objectionable fertilizer is now utilized as manure. It has of course to be remembered that the deodorizing and oxidising power of the soil is not unlimited, and that the amount of filth disposed of must be regulated by the capacity of the trenches, while a proper covering of earth should be carefully laid on. Careless work will of course result in objectionable odours being given off from the trenches. If, however, the work is properly supervised, our experience of the "trench system" is that it is an admirable method of disposing of night soil.

(To be continued.)

THE FERTILITY OF SOILS.

BY PROFESSOR KINCH.

Another plan proposed for the estimation of the available plant food in a soil is due to Dr. L. Grandeau. He had been led to the conclusion that the effective mineral matter in a soil is always combined with organic matter—to a certain extent a return to the old humus theory of Thaer, which was thought to have been effectually buried by Liebig—which organic matter is essential to convey the food to the plant. The mineral matter in fertile soils is, he considers, in much the same state as it is in well-rotted farmyard manure. Grandeau therefore treats the soil with very dilute hydrochloric acid to remove bases and carbonates, and decompose humaces, and then extracts the residue with ammonia; this solution, he considers, contains the available plant food material of the soil. Although this plan seemed to answer with certain soils, yet it is not altogether satisfactory. It is probable that the ammonium humate formed in the operation is the active solvent agent on the soil ingredients. It has been suggested that perhaps ammonium citrate in solution would answer, or a mixture of citric acid and ammonium citrate would probably still more closely represent the natural processes of the roots. A greater interest has been awakened in such method of soil analysis, and we may safely leave methods to be investigated and worked out by agricultural chemists.

The total amount of combined nitrogen which is found in soils of known capabilities, varies in the rather poor arable soils of Rothamsted from about ·1 to ·15 per cent. Generally, in the arable lands of this country it is between ·1 and ·2 per cent. in the surface soil. In the subsoil roughly about one-half of these amounts is commonly found. The surface soil of a pasture will generally contain more than this, from ·2 to ·3 or ·4 per cent. There are many cases, however, in which the percentage of nitrogen in the surface soil is much higher than this, going up to ·6 or ·8 per cent., and then a very fertile soil, and one not easily exhausted, is found; the black earth of Russia, some of the prairieland of Manitoba, and, in this country, some of the Fen lands of Lincolnshire are examples of these fertile alluvial lands full of the remains of previous generations of plants. When we remember that an acre of soil to a depth of 9 inches means about 2½ million pounds of fine dry earth, we see that the stores of combined nitrogen, even in a poor soil, means a large number of pounds; ·1 per cent. means 2,500 lb., in the top 9 inches; ·4 per cent. is equivalent to 10,000 lb. This nitrogen becomes available to the plant by the gradual alteration and oxidation of the organic matter in which it is combined; we know but little of the rate at which it becomes available, but even in a very poor and exhausted soil nitrates are formed annually, and at a rate, as in the Rothamsted drain guages, equivalent to the oxidation of about 35 pounds of nitrogen, or formation of 2 cwt. of nitrate of soda per acre per annum. In a soil in high condition, certainly twice this amount of nitrogen might be expected to be oxidised per annum, equivalent to about 4 or 5 cwt. of nitrate of soda. A factor which would be of use in estimating the fertility of a soil would be the knowledge of the rate at which the nitrogen became oxidised, and nitrates formed from the actual nitrogenous matter in the soil; this yet remains to be worked out.

The amount of phosphoric acid soluble in hydrochloric acid, as in an ordinary analysis, in a soil should never fall below ·05 per cent. and in really first-class soils ic will much exceed this amount, though, excepting in some clay soils, it rarely exceeds ·5 per cent. As we have seen, the amount of phosphoric acid soluble in a ·1 per cent. solution of citric acid shoud not fall below ·01 per cent. The amount of potash soluble in hydrochloric acid in a soil varies within wide limits; in a fairly fertile sandy soil it may be less than ·1 per cent., in a clay it may often be over 1 per cent. The amount of potash soluble in a 1 per cent. solution of citric acid should not be less than ·005 per cent. of the soil. Lime, which is for the most part present in the form of calcium carbonate, exerts a considerable influence on both the physical and chemical qualities of a soil. In a very sandy soil it may not exceed one-tenth of a per cent., but in most good soils it is not under three-tenths of a per cent., and it may with great advantage rise to 2 per cent. of calcium carbonate. Lime in this form materially assists in the processes of nitrification and absorption going on in all fertile soils, and it helps to keep clay in a flocculated and more workable condition.

The effect of aspect, elevation, temperature, amount of rainfall, and other climatic conditions on the productiveness of a soil are matters of great practical importance, and always open to observation. The biological factors, especially the effect of minute organisms, are most intricate, and at present less well known, but very important. A farmer should obtain all the aid he can from chemistry and physics in studying the composition and properties of his soil; but we cannot too strongly advise him always to take in addition the "opinion of the plants" by making for himself on his own farm a few simple but systematic manurial experiments with two or three different classes of plants—*e g.*, cereals, roots, leguminosæ. He will then learn much more thoroughly and effectively than in other ways whether his land requires nitrogen, phosphoric acid, potash, or lime, and on which crops these may be most beneficially employed.

POULTRY NOTES.

It is unnecessary to feed chickens for twenty-four hours after they were hatched. The first feed given should be of eggs hard-boiled mixed with oatmeal or bread crumbs in a dry state, placed on a clean board for the chicks to feed from; give them a little new milk to drink.

Feed chickens six or seven times daily for the first eight weeks; always giving food fresh, never allowing any of the last meal to remain on the board. Do not give sloppy food as this causes diarrhœa which kills them off fast.

Give chickens a daily supply of fresh water in which a small portion of sulphate of iron has been dissolved in proportion of the size of a pea to one quart of water. Keep the water in a shady place, for water heated by the sun is fatal to the chicks.

The *Poultry Monthly* gives some interesting facts as regards the rate of the growth of chickens: The egg weighs, 2 oz.; the newly-hatched chicken, $1\frac{1}{4}$ oz.; at one week old, 2 oz.; 2 weeks old, 4 oz.; 3 weeks old, $6\frac{1}{4}$ oz.; 4 weeks old, 10 oz.; 5 weeks old, 14 oz.; 6 weeks old, $18\frac{1}{2}$ oz.; 7 weeks old, $23\frac{1}{2}$ oz.; 8 weeks old, 28 oz.; 8 weeks old, 32 oz.; 10 weeks old, 36 oz.; 11 weeks old, 41 oz.

The value of turpentine for the removal of intestinal worms in poultry and dogs does not, says the *N.S.W. Agricultural Gazette*, appear to be fully appreciated. It is a good plan to scatter a few drops—say two for each bird—over the soft food occasionally. Birds are more liable to worms after a spell of wet weather. Though this will help to remove them, it must not be forgotten that clean floors will do much to prevent them, which is far better.

Compared with well-rotted farmyard manure there are 48·60 of phosphatic acid in hen manure to 6 lbs. in farmyard manure; 41 lbs. of potash to 10 lbs. in farmyard manure and 67 lbs. of nitrogen to 11 lbs. in farmyard manure. This analysis is based on a ton each of hen and farmyard manure.—*N.S.W. Agricultural Gazette.*

OBITUARY.

Hermann Hellriegel, "a type of those quiet and patient scientific investigators for which Germany is famous, and the scene of whose researches is gradually wresting from nature her hidden secrets," was born on October 21st, 1831. After his school career he gave himself up to agricultural research, and for 17 years he developed upon a scientific basis the method of sand-culture, *i.e.*, the growth of plants in pure sand as far as possible free from all plant food, and adding thereto various food materials in known amounts; light, water, heat, &c., being so regulated that all the factors of growth were kept under exact control.

In 1886 he announced the discovery which at once took the scientific world by storm—the connection between the developement of the nodules found on the roots of certain leguminosae and the assimilation of free nitrogen in the course of the growth of such plants. The general plan and results of Hellriegel's experiments may be explained as follows:—

Quite consistently with common experience in agriculture and in accordance with the results of the Rothamsted and other experiments, Hellriegel found in his experiments, that plants of the grass, the beet-root, the buck-wheat and the turnip families depended on combined nitrogen supplied within the soil. On the other hand he found that leguminous plants did not depend entirely on such supplies. His results were indeed not only very definite, but they had a special bearing on the admittedly unsolved problem of the source of the whole of the nitrogen of leguminous crops.

In 1883 he commenced a comprehensive series of vegetation experiments in pots, in which he grew agricultural plants of various families, in washed quartz sand. To all the pots nutritive solutions, but containing no nitrogen, were added. To one series nothing else was supplied afterwards: to a second a fixed quantity of nitrogen as sodium nitrate was subsequently supplied: to a third twice as much, and to a fourth four times as much. The result was that in the case of the grass family and some other plants, the growth was largely proportional to the combined nitrogen supplied, while in that of the bean family it was not so. In the case of these plants it was observed that in the series of pots to which no nitrogen was added, most of the plants were apparently limited in their growth by the amount of nitrogen which the seed supplied. Here and there, however, a plant growing under ostensibly the same conditions grew very luxuriantly; and on examination it was found that while no nodules were developed on the roots of the plants of limited growth, they were abundant on those of the luxuriantly grown plants.

In view of this result, Hellriegel, with his colleague Dr. Wilfarth, instituted experiments to determine whether, by the infection of the soil with appropriate organisms, the formation of the root nodules and luxuriant growth could be induced: and whether by the exclusion of such infection, the result could be prevented. To this end they added to some of a series of experimental pots 25 or sometimes 50 cubic centimes of the turbid watery extract of a fertile soil, made by shaking a given quantity of it with five times its weight of distilled water, and then allowing the solid matter to subside. In some cases, however, the extract was sterilized. In those in which it was not sterilized, there was almost always luxuriant growth and abundant formation of root nodules: but with sterilization there was no such result. Consistent results were obtained with peas, vetches and some other leguminosae, but the application of the same soil-extract had little or no effect in the case of lupins, serradella, and some other plants of the family which are known to grow more naturally on sandy than on loamy or rich humus soils. Accordingly they made a similar extract from a diluvial sandy soil, where lupins were growing well, in which it might be supposed that the organism peculiar to such a soil would be present; and on the application of this to a nitrogen-free soil, lupins grew luxuriantly and nodules were abundantly developed on their roots.

Hellriegel died on September 24th, 1895. His further researches into the determination of the requirements of plants as regards phosphoric acid and potash have not yet been published, but their

continuation on Hellriegel's lines is assured in the hands of his friend and colleague Dr. Wilfarth.

Louis Pasteur, "the most illustrious scientist of this age, or, indeed of any age, in his own special subject of investigation," was born on December 27th, 1822. His father is said to have been a working tanner in poor circumstances, and Pasteur, after completing his general studies and spending some time in teaching, devoted all his time to Chemistry. With his discoveries in fermentation came the turning point of his career, for thenceforward he forsook chemistry for biology and the study of micro-organisms. Says Dr. Fleming writing of him in 1886:—"To have accomplished so much and so thoroughly; to have been the pioneer in investigations which have already revolutionized medical doctrine and greatly added to our knowledge of natural phenomena; to have effected large economies in important industries and agricultural operations; but, above all, to have given us the means of averting or resisting baneful and pestilential diseases, is the honour to which Pasteur is entitled, and which will be greatly accorded to him now, and in still larger measure hereafter." The great Scientist breathed his last on September 28th, 1895, at Garche near Paris, in a house which had been alotted him by the Municipality of Paris in order that he might pursue his studies of rabies therein.

Professor Riley, the greatest Agricultural Entomologist of our age, was born in London on September 18th, 1843, but the greater part of his life was spent in America, where he held important official appointments. Some idea of the extent of his writings may be gathered from the fact that in the "Bibliology of American Entomology" nearly 1,600 letters appertain to Riley alone. It is said of him that "he successfully set himself the task of baffling and circumventing the cunning devices of insect pests in all their bewildering variety. In the cotton-fields of the Southern States, in the orange groves of Florida and California, among the farm livestock of the Mississippi, in the hop gardens of Kent and in the vineyards of France he found work to do, and accomplished in a fashion which the world had never before witnessed." Among the results of his work in the last few years, two may be specified which have been epoch-making in their influence. The one is the use of kerosine (paraffin), emulsified with milk or soap, against all sucking insects; and the other the invention and perfection of the "Cyclone" or "Riley" nozzles which are in almost universal use in the spraying of insecticides and fungicides. Professor Riley died in Washington on September 14th, 1895.

GENERAL ITEMS.

The manufacture of Turpentine from the resin of conifers is an industry which, according to the *Indian Agriculturist*, prómises to pay well. The operations carried on in connection with the Forest School of the United Provinces of India have proved that the industry can be made profitable. At present it is carried on departmentally under conditions that keep it, for all practicable purposes, in the experimental stage, and it is supposed that if private enterprize were to take up the manufacture energetically it will find its reward.

In the number of the *Agricultural Ledger* which has just appeared, Dr. Watt throws an entirely new light on the preparation of Morinda dye. Prof. Hummel and Mr. Perkin of York College, Leeds, have, it seems, placed within the reach of Indian dyers an inexpensive process for simplifying the use of the dye, and point the way to the production of a valuable dye-material for import to Europe. (*Morinda tinctoria* is the Sinhalese *Ahu*, and *M. umbellata*, to which reference is also made in Dr. Watt's article, is locally known as *Kiri-wel.*)

The Inspector-General of Forests, India, gives the following "Simple and infallible means of removing leaf-bugs, smut, and blight from plants," which has come under his observation in Australia: Take a quantity of common starch, dissolved to the consistency usual when required for getting up linen, choose a fine bright morning, and before the sun gets hot, smear the starch well over the plants affected. In some fifteen minutes the starch rets, and in an hour or two it all peels off, taking with it the dead insects, along with their eggs or progeny, and leaving the plants quite clean.

The following figures, showing the imports into the United Kingdom, will convey some idea of the magnitude of the oil trade. In 1892 the imports into the United Kingdom were:—

OILS (EXCLUSIVE OF ANIMAL OILS AND FATS AND TURPENTINE.)

Palm Oil ..	£1,169,490	
Coconut ..	191,380	
Olive ..	762,516	
Other Oil Seeds ..	555,832	£ 2,679,218
Seeds Cakes ..	2,147,099	2,147,099
Oil Seeds:		
Cotton Seed ..	£2,363,375	
Linseed ..	3,730,341	
Rape ..	1,032,829	
Various Oil Seeds ..	1,000,000	
		8,126,545
		£12,952,862

The Boston *Journal of Commerce* in an article on Ramie or Rhea Grass makes the following remarks:—

The great importance of this fibre has been for many years appreciated in this country, and it is said millions of dollars have been expended to render it available. This added to the millions sterling said to have been expended in Europe and the East for a like purpose, is evidence of the vast value which it is believed this plant will add to textile productions. It is three times stronger than Russian hemp; it is long and of a silky nature. When woven it will not shrink or mildew. It can be easily mixed with cotton or wool, and when mixed with silk its beautiful sheen blends perfectly when woven with that brilliant costly material. There are at the present time several mills in Europe engaged

in spinning this fibre, to wit:—Two in France, two in Germany, one in Austria, one in Switzerland, and two in England. In this country the United States Ramie Co. has been recently organized with a capital of $250,000 to spin these yarns, and it has leased the buildings formerly occupied by the Cranston Mill at Cranston R.I., and operations are to be commenced at as early a period as possible. The two most successful spinning mills at present are said to be those operated at Valobre, France, and at Emmendigen, Baden, Germany. The Valobre factory is now spinning annually 150 tons of yarns, 50 tons of silver, and 70 tons of noils. It spins yarn in numbers up to 90 in fineness. The company has added a dye-house to its plant, and is steadily enlarging its mills. It produces special threads for lace, passementerie, linen fabrics and other products of a higher grade in which the price of the materials is of less importance, while waiting until the abundance and cheapness of the raw material will permit the introduction of threads for coarser goods for which there will be a large demand.

The Editor of the *Australian Agriculturist*, referring to *Eucalyptus globulus*, says that it is only suited for comparatively cool districts. He remarks that its value as a remedy for malarial fever has been disputed, and states that Dr. Aitken calls the planting of the Roman Campagna "a costly failure." We are told, however, that probably the truth lies half way, and that its absorbent power must make the tree of value in damp situations; also that the Trappist monks planted it largely near Rome with good results.

A farmer, who to cure vermin on stock had used various remedies, among the rest kerosene and lard, camphor dissolved in alcohol, and carbolic acid mixed with lard, and all without the desired success, says that finally he tried onions. Of the result he says:—"One particular animal, a yearling bull, was very full even after using the other remedies. I took a large onion, cut it in two, and rubbed him hard all over till I had used two or more onions and my eyes smarted. Then I gave him some of the pieces that were left, which he ate with relish, and I awaited the result. The second day I examined him, and to my astonishment and joy the hair was full of carcases, but not a live one could I find. Since then I have treated all the stock in the same way, but did not give the cows giving milk any to eat for fear of spoiling the butter."